

# BRIGHAM YOUNG UNIVERSITY BULLETIN



The Graduate School  
1961-1962  
CATALOG

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*Anteglassy*

# *Brigham Young University Bulletin*

**Graduate School Issue**

**1961-62**

Published by

**Brigham Young University**

Provo, Utah

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# University Calendar

1961-62

Although as accurate as possible at the time of the printing of this catalog, the calendar is subject to change at the discretion of the University administration.

## First Semester

**September 18, 19 (Monday, Tuesday):** Registration for all regular and special students.

**September 20 (Wednesday):** Class instruction begins.

**October 13 (Friday):** Last day on which late registration may occur for First Semester, and last day for dropping and adding classes.

**October 28 (Saturday):** Homecoming.

**November 10 (Friday):** Mid-semester registration for courses available to students on special authorization.

**November 23, 24, 25 (Thursday, Friday, Saturday):** Thanksgiving recess.

**December 18 (Monday) through January 2 (Tuesday):** Christmas vacation period.

**January 29, 30, 31, February 1, 2 (Monday, Tuesday, Wednesday, Thursday, Friday):** Final examination period.

## Second Semester

**February 5, 6 (Monday, Tuesday):** Registration for Second Semester.

**February 7 (Wednesday):** Class instruction begins.

**February 23 (Friday):** Last day on which late registration may occur for Second Semester, and last day for dropping and adding classes.

**March 30 (Friday):** Mid-semester registration for courses available to students on special authorization.

**May 28, 29, 30, 31, June 1 (Monday, Tuesday, Wednesday, Thursday, Friday):** Final examination period.

**May 31 (Thursday):** Baccalaureate services.

**June 1 (Friday):** Commencement.

## Summer Session

**June 4, 5, 6, 7, 8 (Monday, Tuesday, Wednesday, Thursday, Friday):** Workshop Week.

**June 18 (Monday):** Registration for First Term of Summer School.

**June 19 (Tuesday):** Class instruction begins.


**July 4 (Wednesday):** National holiday observed.

**July 20 (Friday):** End of First Term.

**July 23 (Monday):** Second Term class instruction begins.

**July 24 (Tuesday):** State holiday observed.

**August 24 (Friday):** Last day of Summer Session. Summer Convocation held.



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# Administration and Faculty

## Board of Trustees of Brigham Young University

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 HAROLD B. LEE  
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 DELBERT L. STAPLEY  
 MARION G. ROMNEY

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 CLYDE D. SANDGREN, Secretary

## University Administrative Officers

President ..... Ernest L. Wilkinson  
 Administrative Assistant ..... John T. Bernhard  
 Assistant to the President in Charge of  
 University Development ..... William Noble Waite  
 Vice-President ..... William E. Berrett  
 Vice-President ..... Earl C. Crockett  
 Vice-President in Charge of Auxiliary Services ..... Ben E. Lewis  
 Vice-President and General Counsel ..... Clyde D. Sandgren  
 Vice-President ..... Harvey L. Taylor  
 Comptroller ..... Joseph T. Bentley

## Graduate School

Dean of the Graduate School ..... Wesley P. Lloyd

## Deans and Directors of General Areas

Admissions and Records ..... Alma P. Burton  
 Adult Education and Extension Services ..... Harold Glen Clark  
 Dean of Students ..... Antone K. Romney  
 Director of Research ..... Tracy Hall  
 Director of Summer School ..... Dean A. Peterson

## Deans of Colleges

Biological and Agricultural Sciences ..... Rudger H. Walker  
 Business ..... Weldon J. Taylor  
 Education, Acting Dean ..... A. John Clarke  
 Family Living ..... Jack B. Trunnell  
 Fine Arts ..... Conan E. Mathews  
 General College ..... Wayne B. Hales  
 Humanities and Social Sciences, Acting Dean ..... Reed H. Bradford



Nursing .....	Beulah Ream Allen
Physical and Engineering Sciences .....	Armin J. Hill
Physical Education .....	Milton F. Hartvigsen
Religious Instruction .....	David H. Yarn, Jr.

### Graduate Council

#### Representatives of Academic Areas

Jay V. Beck, Biological and Agricultural Sciences. Term expires September 1, 1963.  
 Robert J. Smith, Business. Term expires September 1, 1963.  
 A. John Clarke, Education. Term expires September 1, 1963.  
 Blaine M. Porter, Family Living. Term expires Sept. 1, 1961.  
 Clawson Cannon, Jr., Fine Arts. Term expires September 1, 1963.  
 Eugene E. Campbell, Humanities and Social Sciences. Term expires September 1, 1961.  
 Albert D. Swensen, Physical and Engineering Sciences. Term expires September 1, 1961.  
 Israel Heaton, Physical Education. Term expires September 1, 1961.  
 Chauncey C. Riddle, Religious Instruction. Term expires September 1, 1962.

#### Members at Large

Mark K. Allen. Term expires September 1, 1963.  
 Reed H. Bradford. Term expires September 1, 1961.  
 John H. Gardner. Term expires September 1, 1962.  
 Bertrand Harrison. Term expires September 1, 1961.  
 H. Tracy Hall, Director of Research.  
 Wesley P. Lloyd, Dean, Graduate School, Chairman.

#### Ex Officio

Earl C. Crockett, Academic Vice-President.

### Chairmen of Departments of Instruction

Accounting .....	Robert J. Smith
Agricultural Economics .....	Ivan Corbridge
Agronomy .....	Raymond Farnsworth
Animal Husbandry .....	Lawrence Morris
Archaeology .....	Ross T. Christensen
Art .....	J. Roman Andrus
Bacteriology .....	Richard D. Sagers
Bible and Modern Scripture .....	Howard H. Barron
Biblical Languages .....	Ellis Rasmussen
Botany .....	Bertrand F. Harrison
Business Education .....	Richard D. Bell
Business Management .....	Parley M. Pratt
Chemistry .....	Albert D. Swensen
Civil Engineering Science .....	Ralph L. Rollins
Dramatic Arts .....	Harold I. Hansen
Economics .....	Willard Doxey
Educational Administration .....	Keith R. Oakes
Educational Philosophy and Programs .....	Stephen L. Alley
Educational Research and Services .....	Lester N. Downing
Electrical Engineering Science .....	Darrel J. Monson
English .....	Bruce B. Clark
Food and Nutrition .....	Sadie O. Morris
Geography .....	Robert L. Layton
Geology .....	Kenneth C. Bullock
Health and Safety Education .....	Ray Watters
History .....	Eugene E. Campbell
History and Philosophy of Religion .....	Truman G. Madsen
Human Development and Family Relationships .....	Blaine M. Porter
Industrial Education .....	Ross T. McArthur
Institute of Government Service, Director .....	Stewart L. Grow
Instruction .....	Dean C. Christensen
Journalism .....	Jean R. Paulson
Languages .....	H. Darrel Taylor

Library Science .....	Hattie M. Knight
Mathematics .....	Harvey J. Fletcher
Mechanical Engineering Science .....	John M. Simonsen
Music .....	Crawford Gates
Physical Education for Men .....	Charles J. Hart
Physical Education for Women .....	Leona Holbrook
Physics .....	John Hale Gardner
Political Science .....	Mark W. Cannon
Psychology .....	Robert Howell
Recreation .....	Israel C. Heaton
Religious Education .....	B. West Belnap
Sociology .....	Joseph N. Symons
Speech .....	Morris M. Clinger
Statistics .....	Howard C. Nielsen
Zoology and Entomology .....	C. Lynn Hayward

### The Faculty of the Graduate School

The faculty of the Graduate School consists of those who hold the rank of professor or associate professor, assistant professor with a doctoral degree, and others approved by the Graduate Council.

- George M. Adáy** ..... Assistant Professor of History (1957)  
B.A., M.A., Brigham Young University, 1948, 1950; Ph.D., Duke University, 1957.
- A. Lester Allen** ..... Associate Professor of Zoology (1954)  
B.A., Ph.D., University of California at Los Angeles, 1946, 1951.
- Mark K. Allen** ..... Professor of Psychology (1946)  
B.A., Brigham Young University, 1926; M.A., Ph.D., Stanford University, 1935, 1955.
- Stephen L. Alley** ..... Associate Professor of Educational Philosophy (1956)  
B.S., M.S., University of Utah, 1947, 1951; Ed.D., Harvard University, 1958.
- Dorald M. Allred** ..... Assistant Professor of Zoology and Entomology (1956)  
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Utah, 1954.
- R. Chase Allred** ..... Associate Professor of Agronomy (1955)  
B.S., Brigham Young University, 1948; M.S., Kansas State College, 1949; Ph.D., University of Nebraska, 1952.
- H. Verlan Andersen** ..... Professor of Accounting (1953)  
B.S., Brigham Young University, 1940; LL.B., Stanford University, 1946; LL.M., Harvard University, 1948; C.P.A., State of Arizona, 1943.
- Floyd M. Anderson** ..... Associate Professor of Human Development  
and Family Relationships (1956)  
B.S., Brigham Young University, 1950; Ed.D., Teachers College, Columbia University, 1956.
- Keith P. Anderson** ..... Professor of Chemistry (1953)  
B.A., Brigham Young University, 1946; Ph.D., Cornell University, 1950.
- Richard L. Anderson** ..... Associate Professor of Religion (1955)  
B.A., M.A., Brigham Young University, 1951, 1957; LL.B., Harvard University, 1954.
- Vernon L. Anderson** ..... Associate Professor of Modern Languages (1956)  
B.A., M.A., University of Utah, 1948, 1949; Ph.D., Stanford University, 1954.
- \*Hyrum L. Andrus** ..... Associate Professor of Religion (1956)  
B.S., Ricks College, 1951; M.S., Brigham Young University, 1952; D.S.S., Syracuse University, 1955.
- J. Roman Andrus** ..... Professor of Art and Education (1943)  
B.S., M.S., Brigham Young University, 1942, 1943; Ed.D., University of Colorado, 1958.
- Clarence D. Ashton** ..... Associate Professor of Horticulture and  
Horticultural Specialties (1951)  
B.S., Brigham Young University, 1929.
- Hyrum J. Babcock** ..... Assistant Professor of Education (1954)  
B.A., M.A., Ph.D., University of California, 1939, 1940, 1953.
- Milton V. Backman, Jr.** ..... Assistant Professor of History and Philosophy  
of Religion (1960)  
B.S., M.A., University of Utah, 1954, 1955; Ph.D., University of Pennsylvania, 1959.
- Ariel S. Ballif** ..... Professor of Sociology (1938)  
B.S., Brigham Young University, 1925; M.A., Ph.D., University of Southern California, 1937, 1945.
- Dee H. Barker** ..... Associate Professor of Chemical Engineering (1959)  
B.S., Ph.D., University of Utah, 1948, 1951.
- J. Dean Barnett** ..... Assistant Professor of Physics (1958)  
B.A., Ph.D., University of Utah, 1954, 1959.



- Owen L. Barnett** ..... Associate Professor of Educational Administration (1950)  
B.S., M.S., Brigham Young University, 1923, 1927.
- Cliff S. Barton** ..... Associate Professor of Civil Engineering (1959)  
B.S., Utah State University, 1947; M.S., Ph.D., Rensselaer Polytechnic Institute, 1953, 1958.
- Howard H. Barron** ..... Associate Professor of Religion (1953)  
B.S., M.S., Utah State University, 1943, 1950; Ed.D., University of Utah, 1953.
- \*Davis Bartholomew** ..... Professor of Electrical Engineering (1954)  
B.S., University of Utah, 1928; M.S., University of Minnesota, 1940; P.E.E., University of Utah, 1948.
- J. LaVar Bateman** ..... Associate Professor of Speech (1949)  
B.A., Brigham Young University, 1941; M.S., Ph.D., University of Wisconsin, 1947, 1950.
- Edith Bartholomew Bauer** ..... Associate Professor of Education (1945)  
B.A., M.A., Brigham Young University, 1930, 1946; Ph.D., University of California at Berkeley, 1956.
- Leland K. Baxter** ..... Professor of Mechanical Engineering (1953)  
B.S., University of New Mexico, 1948; M.S., Ph.D., Purdue University, 1952, 1953.
- D Elden Beck** ..... Associate Professor of Zoology and Entomology (1938)  
B.A., M.A., Brigham Young University, 1929, 1930; Ph.D., Iowa State College, 1933.
- Jay V. Beck** ..... Professor of Bacteriology (1951)  
B.A., M.A., Brigham Young University, 1933, 1936; Ph.D., University of California at Berkeley, 1940.
- Richard Dermont Bell** ..... Assistant Professor of Business Education and Office Management (1957)  
B.S., M.S., Brigham Young University, 1955, 1956; Ph.D., University of California, 1960.
- B. West Belnap** ..... Professor of Religious Education (1951)  
B.S., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1950, 1951.
- Marion Bennion** ..... Associate Professor of Food and Nutrition (1952)  
B.S., Utah State University, 1947; M.S., Teachers College, Columbia University, 1949; Ph.D., University of Wisconsin, 1956.
- Joseph T. Bentley** ..... Comptroller; Associate Professor of Accounting  
B.S., M.S., Brigham Young University, 1928, 1954; C.P.A., State of Utah, 1946.
- John T. Bernhard** ..... Administrative Assistant to the President; Professor of Political Science  
B.S., Utah State University, 1941; M.A., Ph.D., University of California at Los Angeles, 1949, 1951.
- William E. Berrett** ..... Vice-President; Professor of Religion  
B.A., LL.B., University of Utah, 1924, 1933.
- Max J. Berryessa** ..... Assistant Director of Laboratory Schools for Operation; Assistant Professor of Education (1948)  
B.S., M.S., Brigham Young University, 1948, 1949; Ed. D., Stanford University, 1959.
- Harold J. Bissell** ..... Professor of Geology (1938)  
B.S., Brigham Young University, 1934; M.S., Ph.D., University of Iowa, 1936, 1948.
- Angus U. Blackham** ..... Professor of Chemistry (1952)  
B.A., Brigham Young University, 1949; M.A., Ph.D., University of Cincinnati, 1950, 1952.
- Reed H. Bradford** ..... Professor of Sociology (1946)  
B.A., Brigham Young University, 1937; M.A., Louisiana State University, 1939; M.A., Ph.D., Harvard University, 1941, 1946.
- Ralph A. Britsch** ..... Associate Professor of English (1938)  
B.A., M.A., Brigham Young University, 1933, 1951.
- H. Smith Broadbent** ..... Professor of Chemistry (1946)  
B.S., Brigham Young University, 1942; Ph.D., Iowa State College, 1946.
- Thomas H. Brown** ..... Assistant Professor of Languages (1959)  
B.A., Brigham Young University, 1955; M.A., Ph.D., University of Illinois, 1957, 1960.
- Loren C. Bryner** ..... Professor of Chemistry (1935)  
B.S., M.S., Brigham Young University, 1928, 1930; Ph.D., Iowa State College, 1934.
- Kenneth C. Bullock** ..... Professor of Geology (1943)  
B.S., M.A., Brigham Young University, 1940, 1942; Ph.D., University of Wisconsin, 1949.
- Percy E. Burrup** ..... Professor of Educational Administration (1952)  
B.S., M.S., Utah State University, 1932, 1941; Ed.D., Colorado State College of Education, 1951.
- Alma P. Burton** ..... Professor of Religion; Dean—Admissions and Records (1948)  
B.S., Utah State University, 1948; M.S., Brigham Young University, 1950; Ed.D., University of Utah, 1957.
- Jess R. Bushman** ..... Assistant Professor of Geology (1955)  
B.A., Brigham Young University, 1949; Ph.D., Princeton University, 1959.
- Eliot A. Butler** ..... Associate Professor of Chemistry (1956)  
B.S., Ph.D., California Institute of Technology, 1952, 1956.



- Sterling G. Callahan** ..... Professor of Education (1953)  
B.A., Brigham Young University, 1937; M.A., George Washington University, 1947;  
Ed.D., University of Virginia, 1953.
- Eugene E. Campbell** ..... Professor of History (1956)  
B.A., M.A., University of Utah, 1939, 1940; Ph.D., University of Southern California,  
1952.
- Jennie Campbell** ..... Associate Professor of Education (1952)  
B.S., Brigham Young University, 1928; M.A., Teachers College, Columbia University,  
1937.
- Clawson Y. Cannon, Jr.** ..... Assistant Professor of Music (1949)  
B.M., Eastman School of Music, University of Rochester, 1948; Diploma, Konservatorium Zurich, 1953; B.A., M.A., Brigham Young University, 1954, 1955.
- Clawson Y. Cannon, Sr.** ..... Professor of Animal Husbandry (1956)  
B.S., Utah State University, 1913; M.S., Ph.D., Iowa State College, 1924, 1927.
- Kenneth L. Cannon** ..... Professor of Human Development and Family Relationships (1956)  
B.S., Brigham Young University, 1935; M.S., Ph.D., Iowa State College, 1948, 1954.
- Mark W. Cannon** ..... Associate Professor of Political Science (1960)  
B.A., University of Utah, 1949; M.P.A., M.A., Harvard University, 1953, 1954.
- Arthur O. Chapman** ..... Associate Professor of Zoology (1959)  
B.A., Brigham Young University, 1941; M.A., University of Kansas, 1949; Ph.D., University of Nebraska, 1953.
- Thomas E. Cheney** ..... Associate Professor of English (1945)  
B.S., Utah State University, 1930; M.A., University of Idaho, 1936.
- Dean C. Christensen** ..... Associate Professor of Education (1957)  
B.S., M.S., Utah State University, 1938, 1948; Ed.D., University of Oregon, 1957.
- Earl M. Christensen** ..... Associate Professor of Botany (1949)  
B.S., M.S., University of Utah, 1947, 1949; Ph.D., University of Wisconsin, 1954.
- Edward L. Christensen** ..... Professor of Business Education and Office Management (1953)  
B.S., M.S., Ph.D., University of Utah, 1938, 1939, 1953.
- James J. Christensen** ..... Assistant Professor of Chemical Engineering (1957)  
B.S., M.S., University of Utah, 1953, 1956; Ph.D., Carnegie Institute of Technology, 1957.
- Lillian A. Christensen** ..... Assistant Professor of Education (1950)  
B.S., University of Utah, 1938; M.S., Brigham Young University, 1957; Ph.D., Western Reserve University, 1958.
- Parley A. Christensen** ..... Professor of English (1927)  
B.S., Utah State University, 1914; M.A., Ph.D., Stanford University, 1925, 1927.
- Ross T. Christensen** ..... Associate Professor of Archaeology (1952)  
B.A., M.A., Brigham Young University, 1943, 1947; Ph.D., University of Arizona, 1956.
- John R. Christiansen** ..... Associate Professor of Sociology (1957)  
B.S., M.S., Utah State University, 1949, 1952; Ph.D., University of Wisconsin, 1955.
- Bruce B. Clark** ..... Professor of English (1950)  
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Utah, 1951.
- David Leigh Clark** ..... Assistant Professor of Geology (1959)  
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., University of Iowa, 1957.
- Harold Glen Clark** ..... Professor of Education; Dean of Adult Education and Extension Services (1946)  
B.S., Brigham Young University, 1928; M.S., University of Southern California, 1934; Ed.D., George Washington University, 1942.
- Herald R. Clark** ..... Professor of Finance and Banking (1913)  
B.A., Brigham Young University, 1918; M.B.A., University of Washington, 1924.
- J. Reuben Clark, III** ..... Associate Professor of Modern Languages (1941)  
B.A., University of Utah, 1934.
- James R. Clark** ..... Associate Professor of Religion (1938)  
B.A., M.A., Brigham Young University, 1936, 1944; Ed.D., Utah State University, 1958.
- Marden J. Clark** ..... Associate Professor of English (1949)  
B.A., M.A., Brigham Young University, 1948, 1949; Ph.D., University of Washington, 1957.
- Monroe H. Clark** ..... Associate Professor of Philosophy of Education and Guidance (1945)  
B.A., Columbia University, 1923; M.A., Brigham Young University, 1927.
- A. John Clarke** ..... Professor of Educational Administration; Acting Dean of College of Education (1938)  
B.S., M.S., Brigham Young University, 1938, 1942; Ed.D., Colorado University, 1950.
- Coran L. Cluff** ..... Assistant Professor of Chemistry (1960)  
B.S., Arizona State College, 1952; M.S., Ph.D., University of Michigan, 1955, 1960.
- \*Lane A. Compton** ..... Associate Professor of Physical Science Education (1953)  
B.S., M.S., Ed.D., University of Utah, 1943, 1951, 1955.



- Ivan L. Corbridge** ..... Associate Professor of Agricultural Economics (1952)  
B.A., Utah State University, 1946; M.S., University of Chicago, 1948; Ph.D., Washington State College, 1952.
- Lars G. Crandall** ..... Assistant Professor of Business Education  
and Office Management (1944)  
B.S., M.S., Brigham Young University, 1944, 1945; Ed.D., Colorado State Teachers College, 1960.
- John K. Crnkovic** ..... Assistant Director of the Laboratory Schools for  
Curriculum and Teaching; Associate Professor of Education (1957)  
B.A., Willamette University, 1930; M.A., University of Michigan, 1940; Ed.D., Arizona State College, 1956.
- Earl C. Crockett** ..... Vice-President; Professor of Economics  
B.S., University of Utah, 1927; Ph.D., University of California, 1931.
- Evan M. Croft** ..... Associate Professor of Business Education and  
Office Management (1936)  
B.S., Brigham Young University, 1929; M.S., University of Southern California, 1940.
- Robert M. Cundick** ..... Assistant Professor of Music (1957)  
B.F.A., M.F.A. Ph.D., University of Utah, 1949, 1950, 1955.
- Delva Daines** ..... Associate Professor of Education (1955)  
B.S., M.S., Utah State University, 1940, 1947; Ed.D., Washington State University, 1956.
- J. Kenneth Davies** ..... Assistant Professor of Economics (1953)  
B.S., Marquette University, 1945; M.S., Brigham Young University, 1950; Ph.D., University of Southern California, 1959.
- Daniel Decker** ..... Assistant Professor of Physics (1958)  
B.S., M.S., Brigham Young University, 1953, 1955; Ph.D., University of Illinois, 1958.
- Gerrit deJong, Jr.** ..... Professor of Modern Languages; Dean  
Emeritus, College of Fine Arts (1925)  
B.A., M.A., University of Utah, 1920, 1925; Ph.D., Stanford University, 1933.
- Dwight R. Dixon** ..... Assistant Professor of Physics (1959)  
B.S., Utah State University, 1942; Ph.D., University of California, 1955.
- \*David M. Donaldson** ..... Associate Professor of Physics (1959)  
B.S., M.S., Ph.D., University of Utah, 1950, 1952, 1954.
- G. Byron Done** ..... Professor of Religion (1956)  
B.A., University of Utah, 1928; M.A., Ph.D., University of Southern California, 1937, 1939.
- Lester N. Downing** ..... Professor of Personnel and Guidance (1954)  
B.S., M.S., Utah State University, 1947, 1949; Ed.D., Colorado State College of Education, 1951.
- Willard B. Doxey** ..... Assistant Professor of Economics (1956)  
B.S., M.S., University of Utah, 1937, 1947; Ph.D., University of California at Berkeley, 1956.
- William G. Dyer** ..... Associate Professor of Sociology (1955)  
B.A., M.A., Brigham Young University, 1950, 1952; Ph.D., University of Wisconsin, 1955.
- Don L. Earl** ..... Associate Professor of Music (1955)  
B.A., M.A., Brigham Young University, 1940, 1947; Ph.D., Indiana University, 1952.
- E. John Eastmond** ..... Professor of Physics (1951)  
B.A., Brigham Young University, 1937; Ph.D., University of California at Berkeley, 1943.
- \*Robert L. Egbert** ..... Professor of Educational Psychology (1955)  
B.S., M.S., Utah State University, 1947, 1948; Ph.D., Cornell University, 1949.
- Richard Grant Ellsworth** ..... Assistant Professor of English (1958)  
B.A., M.A., Brigham Young University, 1951, 1952; Ph.D., University of Maryland, 1958.
- LaMar T. Empey** ..... Associate Professor of Sociology (1955)  
B.S., M.S., Brigham Young University, 1951, 1952; Ph.D., State College of Washington, 1955.
- Dean B. Farnsworth** ..... Professor of English (1953)  
B.A., M.A., University of Utah, 1946, 1947; Ph.D., University of California at Berkeley, 1950.
- Raymond B. Farnsworth** ..... Professor of Agronomy (1946)  
B.S., Brigham Young University, 1937; M.S., Massachusetts State College, 1938; Ph.D., Ohio State University, 1941.
- Lawrence Fearnley** ..... Assistant Professor of Mathematics (1957)  
B.S., London University, 1953; Ph.D., University of Utah, 1959.
- D. Allen Firmage** ..... Professor of Engineering (1955)  
B.S.C.E., University of Utah, 1940; M.S., Massachusetts Institute of Technology, 1941.
- Royce P. Flandro** ..... Assistant Professor of Education (1953)  
B.S., M.S., University of Utah, 1948, 1950; Ed.D., University of Indiana, 1957.



- Harvey Fletcher** ..... Professor of Physics (1952)  
B.S., Brigham Young University, 1907; Ph.D., Chicago University, 1911; hon. Sc.D., Columbia University, 1935; hon. Sc.D., Kenyon College, 1942; hon. Sc.D., Stevens Institute of Technology, 1942; hon. Sc.D., Brigham Young University, 1954.
- \*Harvey J. Fletcher** ..... Associate Professor of Mathematics (1953)  
B.S., Massachusetts Institute of Technology, 1944; M.S., California Institute of Technology, 1948; Ph.D., University of Utah, 1954.
- Marvin Folsom** ..... Assistant Professor of Modern Languages (1960)  
B.A., M.A., Brigham Young University, 1951, 1955; Ph.D., Cornell University, 1961.
- Herbert H. Frost** ..... Associate Professor of Zoology (1960)  
B.A., M.A., Brigham Young University, 1941, 1947; Ph.D., Cornell University, 1955.
- Dean K. Fuhrman** ..... Professor of Engineering (1954)  
B.S., M.S., Utah State University, 1941, 1950; Ph.D., University of Wisconsin, 1952.
- \*B. Delworth Gardner** ..... Associate Professor of Economics (1959)  
B.S., M.S., University of Wyoming, 1952, 1954; Ph.D., University of Chicago, 1960.
- John H. Gardner** ..... Professor of Physics (1949)  
B.S., Utah State University, 1943; M.A., Ph.D., Harvard University, 1947, 1950.
- Crawford Gates** ..... Associate Professor of Music (1948)  
B.A., San Jose State College, 1944; M.A., Brigham Young University, 1948; Ph.D., Eastman School of Music, University of Rochester, 1954.
- Byron W. Gassman** ..... Assistant Professor of English (1960)  
B.A., Brigham Young University, 1955; M.A., Ph.D., University of Chicago, 1956, 1960.
- David D. Geddes** ..... Assistant Professor of Physical Education and Health (1952)  
B.S., M.S., Brigham Young University, 1950, 1952; Ph.D., University of Southern California, 1959.
- Lt. Colonel William J. Gibson** ..... Professor of Air Science (1959)  
B.S., Utah State University, 1948.
- Preston R. Gledhill** ..... Associate Professor of Speech (1947)  
Degré Supérieur, La Sorbonne, 1938; B.A., Brigham Young University, 1939; M.A., Louisiana State University, 1940; Ph.D., University of Wisconsin, 1951.
- \*J. Rex Goates** ..... Professor of Chemistry (1947)  
B.S., Brigham Young University, 1942; Ph.D., University of Wisconsin, 1947.
- A. Harold Goodman** ..... Associate Professor of Music (1960)  
B.A., University of Arizona, 1947; M.A., Ed.D., University of Southern California, 1951, 1960.
- Stewart L. Grow** ..... Professor of History and Political Science; Director Institute of Government Service (1947)  
B.S., M.S., Brigham Young University, 1935, 1948; Ph.D., University of Utah, 1954.
- Clark J. Gubler** ..... Associate Professor of Chemistry (1958)  
B.A., Brigham Young University, 1939; M.A., University of Southern California, 1941; Ph.D., University of California, 1945; Established Investigator of the American Heart Association, 1960.
- Richard L. Gunn** ..... Associate Professor of Art and Education (1948)  
B.S., M.S., Brigham Young University, 1947, 1950; Ed.D., Stanford University, 1955.
- LeRoy R. Hafen** ..... Professor of History (1954)  
B.A., Brigham Young University, 1916; M.A., University of Utah, 1919; Ph.D., University of California, 1924; Litt.D., University of Colorado, 1935.
- Richard W. Hales** ..... Associate Professor of Physics (1952)  
B.S., Iowa State College, 1946; Ph.D., University of California, 1952.
- Wayne B. Hales** ..... Professor of Physics and Mathematics; Dean of General College (1930)  
B.A., Brigham Young University, 1916; M.A., University of Utah, 1922; Ph.D., California Institute of Technology, 1926.
- \*H. Tracy Hall** ..... Professor of Chemistry, Director of the Research Division (1955)  
B.S., M.S., Ph.D., University of Utah, 1942, 1943, 1948.
- Merrill J. Hallam** ..... Professor of Agronomy (1952)  
B.A., Brigham Young University, 1950; Ph.D., Iowa State College, 1952.
- John R. Halliday** ..... Professor of Music (1936)  
B.A., M.A., Brigham Young University, 1935, 1936; Ph.D., Eastman School of Music, University of Rochester, 1941.
- \*George H. Hansen** ..... Professor of Geology and Geography (1927)  
B.S., Utah State University, 1918; M.S., Ph.D., George Washington University, 1925, 1927.
- Harold I. Hansen** ..... Professor of Speech (1952)  
B.S., Utah State University, 1937; M.A., Ph.D., State University of Iowa, 1940, 1949.
- Terrence L. Hansen** ..... Associate Professor of Languages (1960)  
B.A., University of Utah, 1946; M.A., Ph.D., Stanford University, 1948, 1951.
- \*Kenneth R. Hardy** ..... Associate Professor of Psychology (1954)  
B.A., M.A., University of Utah, 1948, 1949; Ph.D., University of Michigan, 1954.



- Callis R. Harms** ..... Assistant Professor of Educational Administration (1960)  
B.S., M.Ed., Brigham Young University, 1952, 1956; Ed.D., Arizona State College, 1961.
- \*James M. Harris** ..... Associate Professor of Educational Psychology (1955)  
B.S., M.S., Utah State University, 1952, 1953; Ph.D., Cornell University, 1955.
- Bertrand M. Harrison** ..... Professor of Botany (1929)  
B.S., M.S., Brigham Young University, 1930, 1931; Ph.D., University of Chicago, 1937.
- Charles J. Hart** ..... Professor of Recreation and of Physical and Health Education (1925)  
B.S., Utah State University, 1922; M.A., Ed.D., New York University, 1932, 1945.
- Edward L. Hart** ..... Professor of English (1952)  
B.S., University of Utah, 1939; M.A., University of Michigan, 1941; D. Phil., Oxford University (England), 1950.
- Milton F. Hartvigsen** ..... Professor of Physical Education; Dean of the College of Physical Education (1956)  
B.S., M.Ed., Utah State University, 1930, 1939; Ed.D., University of California at Los Angeles, 1956.
- Richard T. Hawkins** ..... Assistant Professor of Chemistry (1959)  
B.A., Brigham Young University, 1951; Ph.D., University of Illinois, 1959.
- \*C. Lynn Hayward** ..... Professor of Zoology (1930)  
B.S., M.S., Brigham Young University, 1927, 1931; Ph.D., University of Illinois, 1941.
- Israel C. Heaton** ..... Professor of Recreation (1956)  
B.S., M.S., Utah State University, 1940, 1941; Re.D., University of Indiana, 1955.
- Armin J. Hill** ..... Professor of Physics; Dean of the College of Physical and Engineering Sciences (1957)  
B.S., M.S., Montana State College, 1932, 1938; M.S., Ph.D., California Institute of Technology, 1949, 1950.
- Max W. Hill** ..... Assistant Professor of Physics (1958)  
B.A., Brigham Young University, 1954; Ph.D., University of California, 1959.
- Lynn M. Hilton** ..... Associate Professor of Education (1953)  
B.S., M.S., University of Utah, 1950; Ph.D., University of Chicago, 1952.
- \*Lehi F. Hintze** ..... Associate Professor of Geology (1953)  
B.A., University of Utah, 1941; M.A., Ph.D., Columbia University, 1949, 1951.
- Leona Holbrook** ..... Professor of Physical Education (1937)  
B.S., University of Utah, 1929; M.A., Ed.D., Columbia University, 1935, 1950.
- Keith H. Hoopes** ..... Assistant Professor of Animal Husbandry (1957)  
B.S., Utah State University, 1957; D.V.M., State College of Washington, 1956.
- A. Burt Horsley** ..... Assistant Professor of Philosophy and Religion (1956)  
B.A., M.A., Brigham Young University, 1945, 1954; DdP., Münster University, 1955; Ph.D., Westphalian Wilhelms Universität, Münster, Germany, 1956.
- William A. Hoskisson** ..... Assistant Professor of Bacteriology (1957)  
B.S., M.S., Utah State University, 1938, 1941; Ph.D., University of Illinois, 1944.
- Robert J. Howell** ..... Professor of Psychology (1952)  
B.A., M.A., Ph.D., University of Utah, 1948, 1949, 1951.
- Reed M. Izatt** ..... Associate Professor of Chemistry (1956)  
B.S., Utah State University, 1951; Ph.D., Pennsylvania State University, 1954.
- Briant S. Jacobs** ..... Professor of English (1946)  
B.A., Brigham Young University, 1939; Ph.D., State University of Iowa, 1944.
- M. Wells Jakeman** ..... Professor of Archaeology (1946)  
B.A., University of Utah, 1931; M.A., University of Southern California, 1932; Ph.D. University of California, 1938.
- Martha R. Jenny** ..... Associate Professor of Nursing (1952)  
Diploma, Presbyterian Hospital School of Nursing, Chicago, 1926; B.S., Teachers College, Columbia University, 1939; M.S., University of Wisconsin, 1946.
- Christen Jensen** ..... Professor Emeritus of History and Political Science; Dean Emeritus of the Graduate School, and President Emeritus of the University  
B.A., University of Utah, 1907; M.A., Harvard University, 1908; Ph.D., University of Chicago, 1921.
- De Lamar Jensen** ..... Assistant Professor of History (1957)  
B.A., Brigham Young University, 1952; M.A., Ph.D., Columbia University, 1953, 1957.
- Vern H. Jensen** ..... Assistant Professor of Personnel and Guidance (1949)  
B.S., M.S., Brigham Young University, 1948, 1950; Ed.D., University of Colorado, 1957.
- Ernest C. Jeppsen** ..... Professor of Industrial Education (1959)  
B.S., Utah State University, 1926; M.S., Colorado State University, 1938.
- Eldred A. Johnson** ..... Associate Professor of Accounting (1955)  
B.A., M.A., Brigham Young University, 1949, 1950; C.P.A., State of California, 1952.
- Garth N. Jones** ..... Assistant Professor of Political Science (1953)  
B.S., Utah State University, 1947; M.S., Ph.D., University of Utah, 1948, 1954.



- Jens J. Jonsson** ..... Professor of Electrical Engineering (1953)  
B.S.G.E., B.S.E.E., University of Utah, 1944, 1946; M.S.E.E., Ph.D., Purdue University, 1947, 1951.
- Edwin R. Kimball** ..... Professor of Physical Education (1935)  
B.S., Brigham Young University, 1926, M.S., University of Southern California, 1935; Ed.D., University of Oregon, 1955.
- Mary A. Krider** ..... Associate Professor of Educational Psychology (1954)  
B.A., University of Nebraska, 1927; Ed.M., University of Oklahoma, 1940; Ph.D., Wayne State University, 1958.
- Don H. Larsen** ..... Professor of Bacteriology (1952)  
B.S., Brigham Young University, 1940; M.A., University of Nebraska, 1942; Ph.D., University of Utah, 1950.
- Clinton F. Larson** ..... Associate Professor of English (1947)  
B.A., M.A., University of Utah, 1943, 1947; Ph.D., University of Denver, 1956.
- Gustave O. Larson** ..... Associate Professor of Church History and Philosophy (1954)  
B.A., M.A., University of Utah, 1920, 1926.
- W. Derby Laws** ..... Professor of Agronomy (1960)  
B.S., Brigham Young University, 1939; M.S., Utah State University, 1941; Ph.D., Ohio State University, 1944.
- Harold W. Lee** ..... Professor of Modern Languages (1937)  
B.A., M.A., Brigham Young University, 1938, 1940; Ph.D., Stanford University, 1946.
- Wesley P. Lloyd** ..... Professor of Education; Dean of the Graduate School (1935)  
B.S., M.S., Brigham Young University, 1927, 1934; Ph.D., University of Chicago, 1937.
- \*Daniel H. Ludlow** ..... Professor of Religion (1955)  
B.S., Utah State University, 1946; M.S., Indiana University, 1953; Ed.D., Columbia University, 1955.
- Ross J. McArthur** ..... Assistant Professor of Industrial Arts (1956)  
B.S., M.S., Utah State University, 1949, 1953; Ed.D., University of Missouri, 1955.
- Keith L. McDonald** ..... Assistant Professor of Physics (1960)  
B.S., M.S., Ph.D., University of Utah, 1950, 1951, 1956.
- Quinn G. McKay** ..... Assistant Professor of Business Management (1960)  
B.S., Brigham Young University, 1954; M.B.A., D.B.A., Harvard University, 1956, 1960.
- Kent H. McKnight** ..... Associate Professor of Botany (1947)  
B.S., M.S., Brigham Young University, 1948, 1952; Ph.D., University of Michigan, 1955.
- \*Delbert H. McNamara** ..... Associate Professor of Physics (1955)  
B.S., Ph.D., University of California at Berkeley, 1947, 1950.
- Walter E. McPhie** ..... Assistant Professor of Education (1959)  
B.S., Utah State University, 1952; M.A., University of Utah, 1953; Ed.D., Stanford University, 1959.
- Melvin P. Mabey** ..... Associate Professor of History and Political Science (1955)  
B.S., M.A., Brigham Young University, 1947, 1953; D. Phil., Oxford University (England), 1955.
- Truman G. Madsen** ..... Assistant Professor of Philosophy and Religion (1957)  
B.S., M.S., University of Utah, 1950, 1951; A.M., Ph.D., Harvard University, 1957, 1960.
- Garth L. Mangum** ..... Associate Professor of Economics (1960)  
B.S., Brigham Young University, 1956; M.P.A., Ph.D., Harvard University, 1958, 1960.
- Milton Marshall** ..... Professor of Physics (1919)  
B.A., Brigham Young University, 1918; Ph.D., University of Chicago, 1924.
- Conan E. Mathews** ..... Professor of Art; Dean of College of Fine Arts (1956)  
B.A., College of Idaho, 1936; M.F.A., University of Utah, 1950.
- \*Merlin J. Mecham** ..... Associate Professor of Speech (1954)  
B.A., Brigham Young University, 1948; M.S., Utah State University, 1949; Ph.D., Ohio State University, 1954.
- J. Keith Melville** ..... Assistant Professor of Political Science (1957)  
B.A., University of Utah, 1947; M.A., University of California, 1949; Ph.D., University of Utah, 1956.
- Albert O. Mitchell** ..... Professor of Speech and Dramatic Arts (1956)  
B.S., M.S., University of Utah, 1933, 1935; Ph.D., University of Wisconsin, 1938.
- J. C. Moffitt** ..... Professor of Educational Administration; Special Consultant to the Department of Educational Administration (1953)  
B.S., M.S., Brigham Young University, 1926, 1929; Ph.D., University of Chicago, 1940.
- Darrel J. Monson** ..... Associate Professor of Electrical Engineering (1956)  
B.S., University of Utah, 1943; M.S., University of California at Berkeley, 1952.
- Joseph Monson, Jr.** ..... Assistant Professor of Economics (1960)  
B.S., University of Utah, 1953; M.A., Stanford University, 1954; Ph.D., University of California, 1960.



- Samuel C. Monson** ..... Associate Professor of English (1952)  
B.S., Utah State University, 1941; M.A., Ph.D., Columbia University, 1948, 1953.
- \*Glen Moore** ..... Assistant Professor of Botany (1958)  
B.S., M.S., Brigham Young University, 1949, 1950; Ph.D., University of Chicago, 1953.
- Alonzo J. Morley** ..... Professor of Speech (1928)  
B.A., M.A., Brigham Young University, 1925, 1931; Ph.D., University of Iowa, 1935.
- A. Reed Morrill** ..... Professor of Educational Administration (1948)  
B.S., M.S., Brigham Young University, 1928, 1937; Ed.D., University of Oregon, 1948.
- Lawrence Morris** ..... Professor of Animal Husbandry (1952)  
B.S.A., University of Arizona, 1925; M.S., Texas A. & M., 1928; Ph.D., Louisiana State University, 1938.
- Sadie O. Morris** ..... Professor of Food and Nutrition (1957)  
B.S., M.S., Utah State University, 1921, 1922; Ph.D., Columbia University, 1933.
- Darrell Moses** ..... Assistant Professor of Educational Psychology (1959)  
B.A., M.A., University of Utah, 1952, 1953; Ph.D., University of Southern California, 1960.
- J. Joel Moss** ..... Assistant Professor of Human Development and Family Relationships (1961)  
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., University of North Carolina, 1954.
- J. Richard Murdock** ..... Assistant Professor of Botany (1952)  
B.S., M.S., Brigham Young University, 1949, 1951; Ph.D., State College of Washington, 1957.
- Joseph R. Murphy** ..... Assistant Professor of Zoology (1960)  
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Nebraska, 1957.
- \*Glen T. Nelson** ..... Professor of Economics (1954)  
B.S., M.S., Utah State University, 1942, 1948; Ph.D., University of Illinois, 1950.
- K. LeRoi Nelson** ..... Associate Professor of Chemistry (1956)  
B.S., Utah State University, 1948; Ph.D., Purdue University, 1952.
- H. Mark Nelson** ..... Assistant Professor of Physics (1959)  
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., Harvard University, 1959.
- Hugh W. Nibley** ..... Professor of History and Religion (1946)  
B.A., University of California at Los Angeles, 1934; Ph.D., University of California, 1938.
- Henry J. Nicholes** ..... Associate Professor of Health Education (1946)  
B.A., Brigham Young University, 1935; M.S., Ph.D., University of Wisconsin, 1939, 1941.
- Joseph K. Nicholes** ..... Professor of Chemistry (1933)  
B.A., Brigham Young University, 1916; M.A., Stanford University, 1924.
- Howard C. Nielson** ..... Associate Professor of Economics (1957)  
B.S., University of Utah, 1947; M.S., University of Oregon, 1949; M.B.A., Ph.D., Stanford University, 1956, 1957.
- Quentin R. Nordgren** ..... Assistant Professor of Music (1955)  
B.A., M.A., Brigham Young University, 1942, 1950; Ph.D., Indiana University, 1955.
- Drayton B. Nuttall** ..... Professor of Educational Administration (1960)  
B.A., M.A., University of Utah, 1936, 1941; Ed.D., University of California at Berkeley, 1951.
- Keith R. Oakes** ..... Professor of Educational Administration (1957)  
B.S., M.S., Utah State University, 1940, 1948; Ed.D., University of Southern California, 1954.
- Clinton L. Oaks** ..... Professor of Marketing (1957)  
B.A., Brigham Young University, 1948; M.B.A., Ph.D., Stanford Graduate School of Business, 1950, 1955.
- John E. Ord** ..... Assistant Professor of Education (1957)  
B.S., Utah State University, 1940; M.S., University of Utah, 1949; Ed.D., Stanford University, 1958.
- Bryce B. Orton** ..... Assistant Professor of Accounting (1961)  
B.S., Brigham Young University, 1951; M.B.A., University of Oregon, 1957; D.B.A., University of Washington, 1961.
- Glen F. Ovard** ..... Assistant Professor of Educational Philosophy (1958)  
B.S., M.E., Brigham Young University, 1949, 1954; Ed.D., Stanford University, 1958.
- Thayne J. Packer** ..... Associate Professor of Youth Leadership (1959)  
B.S., Utah State University, 1939.
- Clyde A. Parker** ..... Associate Professor of Personnel and Guidance (1953)  
B.S., M.E., Brigham Young University, 1952; Ph.D., University of Minnesota, 1957.
- Dean A. Peterson** ..... Associate Professor of Business Education and Office Management; Director of the Summer School (1942)  
B.S., Brigham Young University, 1938; M.S., Ed.D., University of Southern California, 1942, 1959.



- Evan T. Peterson** ..... Assistant Professor of Sociology (1959)  
B.S., M.S., Brigham Young University, 1952, 1953; Ph.D., University of Michigan, 1959.
- Hugh W. Peterson** ..... Associate Professor of Chemistry (1927)  
B.A., M.A., Brigham Young University, 1916, 1928; Ph.D., State University of Iowa, 1936.
- William R. Phillips** ..... Assistant Professor of Geology (1957)  
B.S., M.S., Ph.D., University of Utah, 1950, 1951, 1954.
- Richard D. Poll** ..... Professor of History and Political Science (1948)  
B.A., M.A., Texas Christian University, 1938, 1939; Ph.D., University of California at Berkeley, 1948.
- Bill J. Pope** ..... Associate Professor of Chemical Engineering (1958)  
B.S., University of Utah, 1947; M.S., Ph.D., University of Washington, 1948, 1959.
- Blaine M. Porter** ..... Professor of Human Development and Family Relationships (1955)  
B.S., M.A., Brigham Young University, 1947, 1949; Ph.D., Cornell University, 1952.
- Parley M. Pratt** ..... Associate Professor of Business Management (1960)  
B.A., University of Utah, 1950; M.B.A., Harvard University, 1954; Ph.D., Ohio State University, 1960.
- Edwin A. Read** ..... Director of Laboratory Schools; Associate Professor of Education (1959)  
B.Ed., M.Ed., University of Alberta, 1948, 1949; Ed.D., University of Oregon, 1956.
- Jesse W. Reeder** ..... Associate Professor of History and Political Science (1952)  
B.S., M.S., Utah State University, 1934, 1937; Ph.D., Cornell University, 1952.
- \*Howard T. Reid** ..... Professor of Personnel and Guidance; Assistant Dean of Students (1953)  
B.A., Brigham Young University, 1940; M.S., Ed.D., University of Southern California, 1947, 1949.
- Russell R. Rich** ..... Professor of Religious Instruction (1953)  
B.S., Utah State University, 1936; M.A., Brigham Young University, 1949; Ed.D., University of Wyoming, 1955.
- Grant S. Richards** ..... Associate Professor of Animal Husbandry (1945)  
B.S., M.S., Utah State University, 1940, 1942.
- Chauncey C. Riddle** ..... Associate Professor of Religion and Philosophy (1952)  
B.S., Brigham Young University, 1947; M.A., Ph.D., Columbia University, 1951, 1958.
- J. Keith Rigby** ..... Associate Professor of Geology (1953)  
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., Columbia University, 1952.
- Burton W. Robinson** ..... Associate Professor of Clinical Psychology (1955)  
B.S., M.S., Utah State University, 1951; Ph.D., Purdue University, 1954.
- Donald W. Robinson** ..... Associate Professor of Mathematics (1956)  
B.S., M.A., University of Utah, 1948, 1952; Ph.D., Case Institute of Technology, 1956.
- R. Max Rogers** ..... Professor of Modern Languages (1945)  
B.A., M.A., Brigham Young University, 1940, 1942; Ph.D., Stanford University, 1951.
- Ralph L. Rollins** ..... Associate Professor of Civil Engineering (1956)  
B.S., M.S., Utah State University, 1941, 1949; Ph.D., Iowa State College, 1954.
- Antone K. Romney** ..... Professor of Educational Psychology; Dean of Students (1945)  
B.S., M.S., Brigham Young University, 1933, 1934; Ed.D., Stanford University, 1947.
- Richard D. Sagers** ..... Assistant Professor of Bacteriology (1958)  
B.S., M.S., Brigham Young University, 1954, 1955; Ph.D., University of Illinois, 1958.
- Clyde D. Sandgren** ..... Vice-President and General Counsel; Professor of Business Law  
B.S., Brigham Young University, 1937; LL.B., St. John's University, 1939.
- Lawrence W. Sardoni** ..... Professor of Music (1945)  
B.A., M.A., Brigham Young University, 1935, 1946.
- Merlin J. Shaw** ..... Assistant Professor of History and Philosophy of Religion (1960)  
B.A., M.A., University of Utah, 1938, 1946; Ed.D., University of California at Berkeley, 1960.
- R. Phil Shumway** ..... Associate Professor of Animal Husbandry (1949)  
B.S., Utah State University, 1947; M.S., University of Minnesota, 1949; Ph.D., Utah State University, 1959.
- John M. Simonsen** ..... Associate Professor of Mechanical Engineering (1954)  
B.S.M.E., University of Utah, 1950; M.S.M.E., Ph.D., Purdue University, 1952, 1955.
- Oliver R. Smith** ..... Professor of Journalism (1938)  
B.A., Brigham Young University, 1938; Ph.D., State University of Iowa, 1951.
- Robert J. Smith** ..... Professor of Accounting (1949)  
B.S., Brigham Young University, 1948; M.B.A., Northwestern University, 1949; C.P.A., Illinois, 1949; C.P.A., State of Utah, 1960; D.B.A., Indiana University, 1957.



- Wilford E. Smith** ..... Professor of Sociology (1948)  
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Washington, 1952.
- Richard L. Snow** ..... Assistant Professor of Chemistry (1957)  
B.S., Ph.D., University of Utah, 1953, 1957.
- \*Irene Osmond Spears** ..... Associate Professor of English (1936)  
B.A., Brigham Young University, 1929; M.A., Ph.D., Stanford University, 1934, 1942.
- Sidney B. Sperry** ..... Professor of Old Testament Languages and Literature (1932)  
B.A., University of Utah, 1917; M.A., Ph.D., University of Chicago, 1926, 1931.
- Stephen S. Stanford** ..... Assistant Professor of Housing and Home Management (1959)  
B.S., M.S., Brigham Young University, 1950, 1951; Ph.D., University of Colorado, 1959.
- Howard C. Stutz** ..... Associate Professor of Botany (1953)  
B.S., M.S., Brigham Young University, 1940, 1951; Ph.D., University of California at Berkeley, 1956.
- Albert D. Swensen** ..... Professor of Chemistry (1947)  
B.A., M.A., Brigham Young University, 1937, 1938; Ph.D., Louisiana State University, 1941.
- Russel B. Swensen** ..... Professor of History (1933)  
B.A., Brigham Young University, 1926; M.A., Ph.D., University of Chicago, 1931, 1934.
- Joseph N. Symons** ..... Professor of Sociology (1953)  
B.S., M.S., Utah State University, 1927, 1932; Ph.D., University of Chicago, 1944.
- Orea B. Tanner** ..... Associate Professor of English (1938)  
B.A., Brigham Young University, 1932; M.A., Columbia University, 1953.
- Vasco M. Tanner** ..... Professor of Zoology and Entomology (1925)  
B.A., Brigham Young University, 1915; M.A., University of Utah, 1920; Ph.D., Stanford University, 1925.
- Wilmer W. Tanner** ..... Associate Professor of Zoology and Entomology (1949)  
B.S., M.A., Brigham Young University, 1936, 1937; Ph.D., University of Kansas, 1949.
- Charles Taylor** ..... Associate Professor of Psychology (1954)  
B.Mus., A.B., Ph.D., Syracuse University, 1940, 1948, 1954.
- H. Darrel Taylor** ..... Associate Professor of Modern Languages (1948)  
B.A., M.A., University of Arizona, 1947, 1948; Ph.D., University of Illinois, 1956.
- Harvey L. Taylor** ..... Vice-President; Professor of Educational Administration  
B.S., University of Utah, 1921; M.A., Columbia University, 1925; LL.D., Arizona State College, 1956.
- Weldon J. Taylor** ..... Professor of Marketing; Dean of the College of Business (1937)  
B.S., Brigham Young University, 1934; M.B.A., Harvard Graduate School of Business Administration, 1937; Ph.D., Graduate School of Business Administration, New York University, 1955.
- \*Glen H. Turner** ..... Associate Professor of Art (1947)  
B.S., M.A., Brigham Young University, 1940, 1948.
- Rodney Turner** ..... Assistant Professor of Religious Instruction (1956)  
B.A., M.A., Brigham Young University, 1949, 1953; Ed.D., University of Southern California, 1960.
- Jack B. Trunnell** ..... Professor of Developmental Biology; Dean of the College of Family Living (1958)  
B.A., Brigham Young University, 1942; M.D., University of Utah, 1945.
- S. Lyman Tyler** ..... Associate Professor of History; Director of Libraries (1952)  
B.S., Ph.D., University of Utah, 1949, 1951.
- Richard D. Ulrich** ..... Associate Professor of Mechanical Engineering (1960)  
B.S., M.S.M.E., Ph.D., Purdue University, 1954, 1955, 1959.
- Quentin E. Utley** ..... Assistant Professor of Education (1957)  
B.S., Brigham Young University, 1940; Ph.D., University of Utah, 1960.
- Lee B. Valentine** ..... Associate Professor of Modern Languages (1938)  
B.A., M.A., Brigham Young University, 1939, 1948; Ph.D., Stanford University, 1958.
- Glenn M. Vernon** ..... Associate Professor of Sociology (1959)  
B.S., M.S., Brigham Young University, 1947, 1950; Ph.D., Washington State University, 1953.
- Leo P. Vernon** ..... Professor of Chemistry (1954)  
B.A., Brigham Young University, 1948; Ph.D., Iowa State College, 1951.
- Rudger H. Walker** ..... Professor of Agronomy; Dean of the College of Biological and Agricultural Sciences (1960)  
B.S., Brigham Young University, 1923; M.S., Ph.D., Iowa State University, 1925, 1927.
- Arthur R. Watkins** ..... Professor of Modern Languages (1952)  
B.A., M.A., Brigham Young University, 1941, 1942; Ph.D., Stanford University, 1948.

- Ray Watters** ..... Associate Professor of Health and Physical Education (1957)  
B.S., M.S., Utah State University, 1948, 1950; Ph.D., Indiana University, 1960.
- Stanley H. Watts** ..... Associate Professor of Physical Education; Head  
Basketball Coach (1947)  
B.S., Brigham Young University, 1938.
- Stanley L. Welsh** ..... Assistant Professor of Botany (1960)  
B.S., M.S., Brigham Young University, 1951, 1957; Ph.D., Iowa State University, 1960.
- Ray T. Wilcox** ..... Assistant Professor of Education (1957)  
B.S., M.Ed., Brigham Young University, 1951, 1954; Ed.D., University of California  
at Berkeley, 1957.
- Ernest J. Wilkins** ..... Associate Professor of Modern Languages (1953)  
B.A., Brigham Young University, 1947; M.A., Ph.D., Stanford University, 1949, 1954.
- Ernest L. Wilkinson** ..... President of the University  
B.A., Brigham Young University, 1921; LL.B., George Washington University, 1926;  
S.J.D., Harvard University, 1927; LL.D., Brigham Young University, 1957.
- Glena D. Wood** ..... Assistant Professor of English (1952)  
B.A., Brigham Young University, 1936; M.A., Ph.D., University of Kentucky, 1949,  
1958.
- Stephen L. Wood** ..... Assistant Professor of Zoology and Entomology (1956)  
B.S., M.S., Utah State University, 1946, 1948; Ph.D., University of Kansas, 1953.
- Lael J. Woodbury** ..... Associate Professor of Speech (1954)  
B.S., Utah State University, 1952; M.A., Brigham Young University, 1953; Ph.D.,  
University of Illinois, 1954.
- Golden L. Woolf** ..... Professor of Educational Administration (1934)  
B.A., M.A., Brigham Young University, 1934, 1936; Ed.D., University of California,  
1940.
- David H. Yarn, Jr.** ..... Professor of Theology and Philosophy; Dean of the  
College of Religious Instruction (1950)  
B.A., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1949,  
1958.
- Karl E. Young** ..... Professor of English (1930)  
B.A., M.A., Oxford University (England), 1930, 1934.

The service of members of the Graduate Faculty will, on authorization by the Graduate Council, be supplemented by other members of the University faculty whose advanced training and effective academic work in highly specialized fields qualifies them for service in the graduate program.

\*On leave.



# General Information

## History and Purpose

The Graduate Division of Brigham Young University, which in 1928 became the Graduate School, was established as an administrative unit in 1922, forty-seven years after the founding of the Brigham Young Academy in 1875.

The essential aim of graduate study is to develop the power within individuals to do independent work and to encourage the spirit of research and discovery. The Graduate School offers the opportunity for scholarly development at the highest levels. The maturing of scholarship and the opportunity to participate in the expansion of the boundaries of knowledge are thrilling challenges to alert minds.

Educational institutions such as Brigham Young University reflect the aspirations and problems of the American people. They carry the ideals, dreams, and hopes of democracy from generation to generation. Their ranks will be filled with men and women trained in the skills, the arts, and the sciences, and dedicated to a higher spiritual understanding through which all men can work for the common good.

## Administration and Organization

**The Graduate Dean.** The dean of the Graduate School as general administrator of the graduate program of the University is responsible, under authorization of the academic vice-president and the President, to execute policy and procedure of the Graduate School. He serves as chairman of the Graduate Council and conducts meetings of the graduate faculty.

**The Graduate Council.** The chief administrative body for the graduate program is the Graduate Council, which includes the dean of the Graduate School, the director of research, four members of the graduate faculty elected at large for terms of three years and one member of the graduate faculty elected for a three-year term from each of the areas of subject matter included in the undergraduate colleges. The Academic Vice President is an ex-officio member of the council. The Graduate Council is empowered to act for the graduate faculty on all student petitions and on departmental requests for approval of faculty members for graduate instruction and supervision.

**The Graduate Faculty.** It is the responsibility of the graduate faculty to formulate and recommend requirements for all types of graduate degrees and to recommend regulations and facilities to promote the scholarly activities and research interests of graduate students.

The Graduate School offers the master's degree in 69 fields distributed through 43 graduate departments, and the doctor's degree in 24 fields distributed through 15 graduate departments. A department may be responsible for the operation of the graduate program in several fields. On the other hand, one field may include the offerings of several departments. The departments fall within the areas of: biological and agricultural sciences; business; education; family living; fine arts, humanities and social sciences; physical and engineering sciences; physical education; religious instruction; and industrial education.

Graduate degrees are offered in the following departments and fields:

### Doctor of Philosophy

Bacteriology

Bible and Modern Scripture

Botany

Chemistry

Analytical-Physical Chemistry

Biochemistry

Inorganic Chemistry

Organic Chemistry

Physical Chemistry

Educational Research and Services

Educational Psychology

Geology

Economic Geology and Mineralogy

Stratigraphy, Sedimentation, and Paleontology

Structural, Field, and Dynamic Geology

History

History and Philosophy of Religion

Human Development and Family Relationships

Child Development

Family Life Education

Marriage Counseling

Musicology

Physics

Psychology

Clinical Psychology

General Psychology

Sociology and Anthropology

Zoology and Entomology

### **Doctor of Education**

Educational Administration

Educational Research and Services

Educational Psychology

### **Master of Arts and Master of Science**

Accounting

Agronomy

Animal Husbandry

Archaeology

Art

Painting and Sculpture

Design and Crafts

Bacteriology

Bible and Modern Scripture

Biblical Languages

Botany

Business Education

Chemistry

Analytical-Physical Chemistry

Biochemistry

Inorganic Chemistry

Organic Chemistry

Physical Chemistry

Civil Engineering

Dramatic Arts

Interpretation

Radio and Television

Theatre and Dramatic Arts

Economics

Educational Administration

Educational Research and Services

Educational Psychology

Personnel and Guidance

School Psychology (interdepartmental)

Special Education

Electrical Engineering

English

American Literature

English Literature

Foods and Nutrition

Geography

- Geology
  - Economic Geology and Mineralogy
  - Stratigraphy, Sedimentation, and Paleontology
  - Structural, Field, and Dynamic Geology
- Health
- History
  - History and Philosophy of Religion
- Human Development and Family Relationships
  - Child Development
  - Family Life Education
- Industrial Education
- Instruction
  - Elementary Instruction
  - Secondary Instruction
- Journalism
- Languages
  - French
  - German
  - Greek
  - Latin
  - Portuguese
  - Spanish
- Mathematics
- Mechanical Engineering
- Music
  - Music Education
  - Music Theory
  - Musicology
- Physical Education
- Physics
- Political Science
- Psychology
  - General Psychology
  - School Psychology (interdepartmental)
- Recreation
- Semitic Languages
- Sociology and Anthropology
- Speech
  - Public Speaking
  - Speech Pathology
- Zoology
  - Natural History
  - Entomology
  - Morphology and Experimental Zoology
- Master of Business Administration**
- Business Management
  - Master of Education**
- Educational Administration
- Educational Research and Services
  - Educational Psychology
  - Personnel and Guidance
  - School Psychology
  - Special Education
- Instruction
  - Elementary Instruction
  - Secondary Instruction
- Master of Religious Education**
- Religious Education

Minors are offered in the fields listed above, in addition to the following fields:

- Agricultural Economics
- Applied Music



Basic Chemistry Minor  
Business Management  
Educational Philosophy and Programs  
Finance and Banking  
Industrial Management  
Library Science  
Marketing  
Statistics

## General Requirements

### ADMISSION TO THE GRADUATE SCHOOL

At Brigham Young University, all students who have the bachelor's degree from an accredited university register with the Graduate School, except in the case of a student who is seeking a second bachelor's degree.

**Requirements for Admission on a Degree-Seeking Basis.** For admission as a degree-seeking graduate student an applicant must present a 3.0 (B) cumulative average during his latest two years of academic work or during a later period approved by the department and the dean of the Graduate School. The applicant may be required to furnish additional evidence concerning his ability to pursue graduate work in his major field, such as capacity for research or creativity, facility in written and oral expression, appropriate professional objectives, or through qualifying examinations. Remedial work or other requirements may be prescribed.

A student whose native language is not English is cautioned that adequate command of the English language is indispensable to successful graduate work. He must include with his application for admission a statement from a responsible official that the applicant knows how to read, write, speak, and understand the English language sufficiently well to be able to pursue a satisfactory program of study in the Graduate School. Admission ordinarily will be granted on a provisional basis pending the applicant's experience on the campus that demonstrates his ability to do successful graduate work.

**Procedure for Admission on a Degree-Seeking Basis.** To be admitted to the Graduate School on a degree-seeking basis, a student should file with the Admissions Office of the University an application which includes the following: (1) A form for admission or readmission to the University (unless the student was in attendance the preceding semester). (2) Two transcripts of all previous college work (if that work was **not** done at Brigham Young University). In addition to the items submitted to the Admissions Office, there should be submitted to the dean of the Graduate School a form for admission to the Graduate School on a degree-seeking basis, and three letters of recommendation. Two of these letters should relate to the student's academic ability and the third to his character. These letters should be sent directly to the Graduate Dean by those making the recommendations. Forms for application and for letters of recommendation are provided by the Graduate School office.

Application forms should be filed at least two months before the beginning of the semester in which the student plans to begin his work. Students who do not have their applications filed by this date cannot be assured that their applications will be acted upon by registration time.

The forms are evaluated by the department in which the student intends to major and by the dean of the Graduate School. Permission to register as a graduate student is by notice from the Admissions Office of the University and does not by itself constitute permission to seek a higher degree. Permission to seek a higher degree is by notice signed by the chairman of the department and the dean of the Graduate School.

**Provisional Students.** The student who does not have a 3.0 (B) average or higher for his latest two years of college work or who matriculated from a university which is not accredited, may be admitted on a provisional classification upon the recommendation of his department chairman and approval of the graduate dean. Admission from this category to full degree-seeking status may be granted upon the completion of at least 12 semester hours of "B" credit in residence work prescribed and recommended by the department chairman, and

approved by the dean of the Graduate School. Up to 12 semester hours earned while a provisional student may be applied on the degree if approved by the student's advisory committee.

**Admission on a Non-Degree-Seeking Basis.** A student with the bachelor's degree may register on a non-degree-seeking basis for a wide variety of courses for which he is prepared. To be admitted to the Graduate School on a non-degree-seeking basis, a student should file with the University Admissions Office (unless he was in attendance the preceding semester), an application for admission or readmission, furnish an official transcript of all preceding work at institutions attended (if that work was not done at Brigham Young University), and show evidence of having received the bachelor's degree. Admission is by means of a registration permit issued by the University Admissions Office. If a student has been in attendance at Brigham Young University the previous semester, registration materials are automatically prepared for him.

### **GRADUATE CREDIT FOR SENIORS**

If, during the last semester of the senior year, a candidate for a baccalaureate degree finds it possible to complete all requirements for such a degree with a registration of fewer than sixteen hours of undergraduate credit, he may register for graduate credit to the extent that the total registration shall not exceed sixteen hours during the semester. A form, provided by the Graduate School office, stating that all baccalaureate requirements are being met during the current semester, must be signed by the appropriate undergraduate dean and presented to the dean of the Graduate School prior to such registration. This registration does not constitute permission to seek a higher degree.

### **TRANSFERRED CREDIT**

Graduate work may be transferred from other institutions upon the approval of the student's advisory committee and the Graduate Council. Forms for petitioning for such transfers are available in the Graduate School office. Credit transferred must represent work which is a fair and reasonable equivalent of corresponding work at this University. All transferred credit must be of grade "B" or better. At least twenty semester hours toward the master's degree must be taken on the Brigham Young University campus in Provo.

### **STUDENT LOAD**

An academic load for graduate students not part-time employed is from 10 to 16 semester hours or their equivalent in research. Teaching assistants and others employed part-time should limit their loads to fewer than 12 credit hours as approved by the registration adviser and the dean of the Graduate School. Full-time employees should register for not more than 5 semester hours. Experience has shown that because of the intense character of graduate work and the academic grade-point average required, it is usually advisable for graduate students to limit their programs to something less than the maximum permitted when employed on a full or part-time basis.

### **SCHOLASTIC STANDARDS**

The degree-seeking student who fails to maintain at least a 2.7 grade-point average in his graduate work each semester will be placed on probation and must earn a "B" (3.0) average in graduate level work the next semester or he ceases to be classified on a degree-seeking basis. The average grade of all graduate work attempted must be at least "B". At least three-fourths of all work applying on the degree must be of grade "B" or better; none of the remainder may be of a grade lower than "C".

### **ENGLISH 99**

Students whose ability to write clearly and correctly is not deemed satisfactory by the department involved are required to enroll in English 99, a non-credit course, Problems in Thesis Writing. Students should take this course at the earliest possible time.

### **DEPARTMENTAL REQUIREMENTS**

Special departmental requirements for advanced degrees are listed under the major department.



## APPLICATION FOR GRADUATION

A student, when contemplating graduation, should file an application for graduation with the Graduate School office and pay the graduation fee. This should be done not later than January 15 for June graduates and by March 15 for August graduates, and before filing the thesis with the Graduate School office or scheduling the final examination.

## GRADUATION

All graduating students must attend the graduation exercises unless they have made satisfactory explanations of absence and have been officially excused under the authority of the President of the University. The request to be excused from the commencement exercises must be presented in writing at least two weeks prior to commencement. Extreme emergencies of either illness or death in the family are the only exceptions to this requirement. Students not officially excused from commencement will not be graduated until they attend a later commencement in person.

## Master's Degree

Departments are authorized to establish the Master of Science or the Master of Arts degree program on two plans: Plan A requires a thesis. Plan B requires, in lieu of a thesis, additional academic performance beyond thirty hours of course work to be recommended by the department and approved by the Graduate Council.

Admission on a degree-seeking basis must be completed before the student registers for the last 15 hours of credit intended to apply on the degree.

## PROCEDURE FOR THE GRADUATE STUDENT

The student's program and his thesis or dissertation are developed under the direction and supervision of an advisory committee. The advisory committee for a student working toward the master's degree consists of at least two members. These members are nominated by the student from the graduate faculty of his major and minor department in consultation with the chairman of his major department and with the approval of the dean of the Graduate School. The chairman of the advisory committee is a representative of the major field. This committee advises the student in his proposed program, approves his registration, and directs his research and the work on his thesis. The advisory committee must be formed and the names of the members on file in the office of the graduate dean within two months after a student's admission on a degree-seeking basis. At least 15 hours must be taken after the advisory committee has been formed and must be approved by the advisory committee at registration. All work which is to apply toward an advanced degree must be approved by the advisory committee.

An advisory committee may be changed with the approval of all prospective members of the newly constituted committee, the chairman of the major department, and the dean of the Graduate School. After such a change, the student reviews his entire program with the new committee.

Students may secure at the office of the graduate dean an information sheet as a guide to completing all administrative procedures for graduate degrees.

## AMOUNT AND DISTRIBUTION OF CREDIT

The master's degree requires a minimum of 30 semester hours of credit and may be obtained by completing one of the options listed below. The second option is available only after a department has submitted its program to and been approved by the Graduate Council.

Applicable to Options I and II is the provision that at least 21 credit hours must consist of courses for which there is a systematic body of subject matter and is to be identified with a given course number such as ordinarily constitutes a formal course or seminar. Individual reading, thesis, research, and special problems may not be included in these latter totals.



**Option I.** At least 15 semester hours, exclusive of thesis, must be in the major field and at least 9 semester hours in a minor field approved by the major department.

**Option II.** Thirty hours must be in the major field or in direct support of the major field. Courses outside the major field and considered as in direct support of the major field must be specified and listed by the department in advance, and such courses should not constitute more than 12 of the 30 credit hours.

A limited amount of upper division undergraduate work may be applied toward the master's degree only if starred and initialed on the program outline of a degree-seeking student by the student's adviser at the beginning of the student's graduate work. No such work carrying a "C" grade will be applied toward the master's degree. At least 20 hours of the work for the master's degree must be in the 500 series or above and taken on the Brigham Young University campus in Provo.

No correspondence credit is applicable toward a master's degree.

The prospective candidate for the master's degree enrolls for thesis (course 699) in his major department. Before beginning his research or creative work, the student must obtain approval of the thesis problem from his advisory committee, and he must file with the office of the graduate dean a title card and a prospectus, both signed by the members of the advisory committee. He is required to complete at least one semester of study after this is done.

An academic department may, on special authorization of the Graduate Council, choose as a policy, provision No. 2 as indicated below. In departments where such approval has been granted, the candidate may choose either of the two following provisions for filing the thesis.

(1) A complete, signed, but unbound copy of the thesis in final form, and one copy of an approved abstract (two copies if the student is majoring or minoring in education) of not more than 600 words must be filed with the office of the graduate dean at least fifteen days prior to the final examination and not later than thirty days before graduation.

(2) An approved copy of the thesis in good form, but not in final form, together with an approved copy of the abstract of not more than 600 words must be filed with the office of the graduate dean not later than 45 days prior to graduation and 15 days prior to the final examination.

If provision 2 is chosen, a complete, signed, but unbound copy of the thesis in **final form** and one copy of an approved abstract (two copies if the student is majoring or minoring in education) must be filed with the office of the graduate dean at least 15 days before graduation.

A minimum of four copies of the thesis and abstract is required by the Graduate School office. The abstract should be bound with the thesis, following the bibliography.

Detailed directions for the form of the thesis may be obtained from the major department. A maximum of six hours of thesis credit may be counted in the 30-hour requirement toward the master's degree.

#### **FINAL ORAL EXAMINATION**

The passing of a final oral examination is required not less than 15 days prior to graduation if provision No. 1 is chosen, and not less than 30 days prior to graduation if provision No. 2 is chosen.

It is the duty of the student to schedule the final examination after obtaining, from the chairman of the major department, the names of the examining committee. Forms are available for this purpose at the office of the graduate dean.

The examination committee for the master's degree will consist normally of at least four members. There must be at least two examiners from the student's major field and one examiner from the student's minor or supporting field. There shall be on the committee at least two examiners who are not members of the student's thesis advisory committee. The committee may consist of a minimum of three examiners if constituted as provided above. In any case, more than one negative vote of the examination committee will prevent the student from passing the examination. Other members of the graduate faculty may attend the examination and enter the discussion, but they may not vote.



The final oral examination consists of a defense of his thesis by the student and a searching examination into the student's preparation and competence in his major and minor fields.

### MASTER'S DEGREES OFFERED

**Master of Arts Degree.** The Master of Arts degree is awarded upon completion of general and departmental requirements, plus completion of the foreign language requirement for a Bachelor of Arts degree (18 semester hours of a foreign language).

**Master of Science Degree.** The Master of Science degree is awarded upon completion of the general requirements listed above and any special requirements listed by the department.

**Master of Business Administration Degree.** The Master of Business Administration degree is awarded upon completion of the two-year professional program described under the Department of Business Management.

**Master of Education Degree.** The Master of Education degree is awarded upon completion of the requirements for the Master of Science degree, with the following exceptions: (1) a satisfactory field project (course 698) may be substituted for the thesis, (2) a total of 30 credit hours shall be presented in addition to the field project, and (3) one year of teaching experience is required.

The project is a study of a practical problem in the field of the candidate's interest as a teacher. The problem is selected and developed by the student, subject to the approval of his advisory committee. The finished report on the project should conform to the requirements for a thesis in matters of style, format, and manner of filing.

**Master of Religious Education Degree.** The Master of Religious Education degree is awarded upon completion of the requirements listed above and the special requirements listed under the Department of Religious Education.

### GRADUATE CERTIFICATION

**Two-year Certificate in Educational Administration.** The two-year certificate in educational administration is offered for the preparation of school principals and supervisors, and is awarded after completion of requirements listed under the Department of Educational Administration.

### TIME LIMIT

Graduate credits are applicable toward the master's degree only within a six-year period from the time they are received. Students are advised to complete their programs without notable interruption.

## Doctor of Education Degree

### ADMISSION REQUIREMENTS

For admission to degree-seeking status as a doctoral applicant, the student must have completed 22 semester hours of education or possess certification as a teacher, must have completed two years of successful professional experience, and must possess demonstrable acquaintance with the field of education. The student will be tested for familiarity with background factors of significance to education.

### CLASSIFICATION OF DOCTORAL STUDENTS

Students seeking the Doctor of Education degree are classified as doctoral applicants and doctoral candidates. The student must be admitted to degree-seeking status as a **doctoral applicant** at Brigham Young University during the first semester he is enrolled as a full-time graduate student. He is **admitted to candidacy** after meeting conditions for admission to candidacy and before registering for the field project and internship.

### ADVISORY COMMITTEE

The early advisement of the student, until he passes the entrance examination, is supervised by the graduate committee in education which assigns him a specific adviser in his major field.

When the student successfully passes the entrance requirements, he is given an advisory committee of at least four members. They are nominated by the student to the department chairman who in turn recommends the committee membership to the graduate committee in education. The graduate committee then forwards its recommendation to the dean of the Graduate School for final approval. The chairman and one member of the advisory committee must be in the student's major field, and there must be at least two additional members representing two other departments. The chairman of the major department is a member *ex officio*. All work which is to apply toward the Doctor of Education degree must be approved by the advisory committee.

As soon as his program of study is determined in consultation with the advisory committee, the student should supply each member of the committee with a copy of the program, and he should file one copy, which is signed by the committee members with the Graduate School office and one copy with the graduate office of the College of Education.

The membership of the advisory committee may be changed with the approval of the chairman of the student's advisory committee, the chairman of the major department, the graduate committee in education, and the dean of the Graduate School.

### **ACADEMIC REQUIREMENTS**

The Ed.D. degree is awarded for distinguished attainment in a recognized field of learning. The student must meet the planned program as established by his major department. The equivalent of a minimum of three years of full-time study beyond the bachelor's degree is required. Full-time study is defined as twelve to sixteen hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements, and may accept or require up to two years of full-time study elsewhere. One year must consist of two consecutive semesters on the campus of the University, during which the student takes one two-hour seminar each semester. There is no foreign language requirement. The student must demonstrate proficiency in statistics to the satisfaction of the advisory committee.

### **COMPREHENSIVE EXAMINATION**

A comprehensive examination is administered to all doctoral students after approximately sixty semester hours have been completed. A final written examination is administered to all doctoral students at the completion of their course work. The final oral examination is administered at the conclusion of the field project.

### **ADMISSION TO CANDIDACY**

Satisfactory completion of the final written examination is necessary for admission to candidacy for the Doctor of Education degree. The student has the responsibility of filing with the dean of the Graduate School a form, provided by the office of the graduate dean and signed by the student's advisory committee and the chairman of his major department, stating that all conditions for admission to candidacy have been met.

Notice from the dean of the Graduate School then admits the student to candidacy for the degree. This normally will be done after the completion of his graduate work.

### **FIELD PROJECT AND REPORT**

A research project for the improvement of an educational program must be carried out under the direction of the student's advisory committee, after he has passed the final written examination. The report of the field study must meet the same standards of format as the Doctor of Philosophy dissertation and must be submitted under the same schedule and requirements regarding publication.

### **FINAL EXAMINATION**

Not later than 15 days before graduation, the student must pass a final examination on the field project. The examining committee consists of the student's advisory committee and such others as the department chairman and dean of the Graduate School may designate.



**TIME LIMIT**

All work for the degree must be completed within nine years of the date on which the student applies for admission to degree-seeking status for that degree.

## **Doctor of Philosophy Degree**

**CLASSIFICATION OF DOCTORAL STUDENTS**

Students admitted to the Doctor of Philosophy degree program are classified as **doctoral applicants** and **doctoral candidates**. The student must be admitted to degree-seeking status as a **doctoral applicant** at Brigham Young University not later than the beginning of his last three semesters of full-time study intended to apply on the degree. The student is **admitted to candidacy** after meeting conditions for admission to candidacy and before registering for the last two semesters of full-time study intended to apply on the degree.

**ADVISORY COMMITTEE**

The student's program and his dissertation are developed under the direction and supervision of an advisory committee. The advisory committee for a student working for the Doctor of Philosophy degree consists of at least three members. These members are nominated by the student from the graduate faculty of his major and minor fields in consultation with the chairman of his major department and with the approval of the dean of the Graduate School. The chairman of the advisory committee is a representative of the major field. All work which is to apply toward the Doctor of Philosophy degree must be approved by the advisory committee.

As soon as his program of study is determined in consultation with the advisory committee, the student should supply each member of the committee with a copy of the program, and he should file a copy, which is signed by the committee members, with the Graduate School office.

The membership of the advisory committee may be changed with the approval of all prospective members of the newly constituted committee, the chairman of the major department, and the dean of the Graduate School. After such a change the student reviews his entire program with the new committee.

**ACADEMIC REQUIREMENTS**

The Doctor of Philosophy degree is awarded for distinguished attainment in a recognized field of learning, not merely for the completion of courses of study. The student must select a major field of study and at least one minor or supporting field approved by the department chairman and the dean of the Graduate School. Specific requirements in these fields are described by the departments. The equivalent of a minimum of three years of full-time study beyond the bachelor's degree is required. A full semester of residence credit is defined as from twelve to sixteen hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements, and may accept or require up to two years of full-time study elsewhere. Ordinarily two years of full-time course work or research is to be taken on the Brigham Young University campus in Provo. At least two consecutive semesters of work or the equivalent of 24 or more semester hours must be taken on the Provo campus. For special reason and on recommendation of the student's advisory committee and by final authorization of the Graduate Council, the minimum time in residence on the Provo campus may be reduced to two full semesters during which 24 or more credit hours will be earned.

**LANGUAGE REQUIREMENT**

Before completing his comprehensive examinations and being admitted to candidacy, the student must present satisfactory evidence of proficiency in two foreign languages, one of which must be French or German. The selection of both required languages will be made in consultation with the student's advisory committee. In exceptional cases, the student may petition the Graduate Council to substitute another language for French or German.

The language examinations are given during the months of October, April, and July, the last Thursday of the month at 4:00 p.m. Doctoral applicants wishing to take the examination must apply two weeks in advance of the scheduled date. The application should be made at the office of the graduate dean.

The language examination is administered by the Language Department in agreement with the department in which the student is majoring. If the student is not prepared to pass examinations in both languages at entrance, it is necessary at the time of his application for admission to satisfy the dean that he is taking the necessary steps to do so promptly.

### COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination on his doctoral fields under the direction of his advisory committee. This examination will normally be given at the end of the second year of graduate study.

### ADMISSION TO CANDIDACY

Satisfactory completion of the comprehensive examination and the language requirement is necessary for admission to candidacy for the Doctor of Philosophy degree. The student has the responsibility of filing with the dean of the Graduate School a form, provided by the office of the graduate dean and signed by his advisory committee and the chairman of his major department, stating that all conditions for admission to candidacy have been met and that his dissertation subject has been approved.

Notice by the dean of the Graduate School then admits the student to candidacy for the degree. This will normally be done after the completion of two years of graduate work. At least two semesters of full-time study must be completed after admission to candidacy and before graduation.

### DISSERTATION

After being admitted to candidacy, the student carries out original research for an acceptable dissertation under the direction of his advisory committee.

An academic department may, on special authorization of the Graduate Council, choose as a policy, provision No. 2 as indicated below. In departments where such approval has been granted, the candidate may choose either of the two following provisions for filing the dissertation.

(1) A complete, signed, but unbound copy of the dissertation in final form, and one copy of an approved abstract (two copies if the student is majoring or minoring in education) of not more than 600 words must be filed with the office of the graduate dean at least fifteen days prior to the final examination and not later than thirty days before graduation.

(2) An approved copy of the dissertation in good form, but not in final form, together with an approved copy of the abstract of not more than 600 words must be filed with the office of the graduate dean not later than 45 days prior to graduation and fifteen days prior to the final examination.

If provision No. 2 is chosen, a complete, signed, but unbound copy of the dissertation in final form and one copy of an approved abstract (two copies if the student is majoring or minoring in education) must be filed with the office of the graduate dean at least 15 days before graduation.

A minimum of four copies of the dissertation and six copies of the abstract is required by the Graduate School.

### FINAL EXAMINATION

Not later than fifteen days before graduation, the student must pass a final examination on his dissertation and applicable subject matter given by a committee of not fewer than five members. The committee consists of the advisory committee, plus such other members as the department chairman and the dean of the Graduate School may designate.

### TIME LIMIT

All requirements for the Doctor of Philosophy degree must be completed within nine years of the date on which the student applies for admission to degree-seeking status for that degree.



## Scholarships, Fellowships, and Assistantships

Graduate awards are administered through the committee on graduate awards under the chairmanship of the dean of the Graduate School.

**Fellowships and Scholarships.** The University has established the following fellowships and scholarships for graduate students:

23 fellowships ranging in value from full tuition and general fees to an amount of \$1,700 plus tuition and general fees.

26 scholarships ranging in value from full tuition and general fees to an amount of \$1,800 plus tuition and general fees.

Scholarships and fellowships are awarded on the basis of high academic achievement and are available to students in all areas of graduate study. Recipients must possess a baccalaureate degree at the beginning of the period for which the scholarship or fellowship is granted and must be a candidate for a higher degree. Applications for the academic year beginning in September should be filed by the preceding March 1. Application forms may be obtained from the office of the Graduate Dean located in the A. O. Smoot Administration Building.

**Teaching and Laboratory Assistantships.** Many departments employ graduate students as teaching or laboratory assistants. Assistantships are awarded on the basis of scholastic accomplishment and competence for service. Remuneration is based on the time which is devoted to teaching duties. The stipends vary from \$750 to \$2,000 per year. Application forms and detailed information may be obtained by writing to the chairman of the department in which the applicant wishes to become an assistant.

**Research Assistantships and Fellowships.** A substantial number of research assistantships and fellowships are available at Brigham Young University. Recipients work part time under the supervision of a faculty member on research projects which are supported by university, government, or private sources. The awards vary from \$1,200 to \$2,800 per school year, depending upon the type of research and the amount of time devoted to it. Students interested in appointments to research assistantships or fellowships should direct inquiries to the director of research or to the chairman of the major department.

## Institute of Government Service

Brigham Young University's newly established Institute of Government Service offers a wide range of programs starting with the 1961-62 school year. Specialized training is given students planning careers of public service in such fields as budget and fiscal work, city management, organization and methods, personnel, public works administration, and foreign service. Classes are available which are applicable to all levels of government: international, federal, state, and local.

Each student is interviewed to determine the goals that he seeks. A program will then be outlined to aid him in reaching his goals. The program will generally be of an interdepartmental nature, partaking of the best offerings of the various departments of the University. For example, if a student wishes to prepare for the U.S. Foreign Service, a program is outlined which includes appropriate courses in political science, history, economics, and languages. A student planning a career in finance administration on the local government level will be trained in governmental accounting, budget preparation and analysis, organization and management techniques, economics, and government finance. The student's program will also vary in accordance with his background preparation. Adequacy of background is determined by a review of training and experience at the time of application for admission.

A wide range of background training may qualify a student for admission. For example, political science, business administration, sociology, history, languages, economics, and engineering would all be acceptable if combined with adequate breadth of training. Special consideration is given to the experienced public servant seeking to increase his efficiency.

Details of the program may be secured from the Director, Institute of Government Service, Brigham Young University. Application for admission should be directed to the dean of the Graduate School.



## Summer Session

Graduate students doing part of their work at the University during the summer will find a wide range of graduate courses suited to their purpose. Summer School is divided into two terms. Students may register for a maximum of six credit hours per term.

## Library Facilities

The Brigham Young University library is presently expanding its research collections on a major scale. With the completion of the new library building in 1961, it was possible to bring together parts of the collection that had been temporarily housed in almost every major building on the campus. The general collection is available on open shelves on four of the five floor levels: two below and two above the ground floor. The central reference collection, the public catalog, the circulation desk, and the administrative offices are located on the ground level. An information booklet is available to assist students in the use of these new facilities. Study space is available on each floor interspersed with stack areas. Special study facilities are provided for the use of graduate students and other mature scholars.

With the growth of the collection an effort is being made to acquire those library tools necessary to a graduate research program. A well-trained staff is available to assist scholars in the use of the book collection, and to interpret the specialized bibliographies, catalogs, guides, and indexes.

The University Library contains approximately 325,000 bound volumes, several thousand pamphlets, and an extensive collection of titles on microfilm and microcards. A good selection of professional journals and of other current periodicals, as well as local, regional, and national newspapers, is also available.

The facilities of the L.D.S. Genealogical and Historical Library in Salt Lake City, which contains over 500,000 titles, are also available by special arrangement, as are collections of Utah and Mormon materials in the L.D.S. Church Historian's Library in the same city.

## Evening School

On week-day evenings, classes are conducted on campus in areas of interest to adults who desire to improve or enrich their lives through part-time education.

Regular college credit, equivalent to daytime classes, is given for all evening school classes. Anyone wishing to do so may take a class on a non-credit basis as an auditor.

Class schedules, listing classes and giving detailed information about all procedures, are available free of charge upon request. Courses listed in the Evening School schedule which do not receive ten or more registrations will be cancelled. Students who have registered in cancelled classes are notified and invited to join other classes or are given full refunds.

At scheduled times during each registration period, trained counselors are available to aid students in making educational and vocational plans or in working through related personal problems. There is no charge or obligation to the student for these services.

Veterans are eligible to enroll under the G.I. Bill if they meet the eligibility requirements of the Veterans' Administration.

Day students may enroll in Evening School classes on their regular registration card by picking up cards marked "Section 90." An extra fee of \$3.00 per credit hour is charged for these classes.

One dollar is charged for each change slip presented after the first week of the semester unless the action is caused by the Evening School.

Each student registered through Extension Services who discontinues attendance at class **must** use the proper procedure to withdraw by coming to the Extension Center.

A pro-rated refund of tuition fees is made to those who withdraw properly from evening classes during the first four weeks of the semester. There is no refund for withdrawals occurring after the fourth week of the semester.

Students registering for evening classes only register from 5:00 to 9:00 p.m. on the dates announced in current schedules.



# University Fees

Although the following figures are applicable at the time of the printing of this catalog, the University must reserve the right to change them without notice.

## General Fees

### REGULAR STUDENTS:

	1st Semester	2nd Semester	Total
Tuition .....	\$ 90	\$ 90	\$180
Building, gymnasium, student activity, and health fees .....	40	40	80
	<u>\$130</u>	<u>\$130</u>	<u>\$260</u>

### SPECIAL STUDENTS:

	Tuition	General Service*	Total
Minimum fee .....	\$22.50	\$ 4.50	\$27.00
Three credit hours .....	30.00	6.00	36.00
Four credit hours .....	37.50	7.50	45.00
Five credit hours .....	45.00	9.00	54.00
Six credit hours .....	52.50	10.50	63.00
Seven credit hours .....	60.00	12.00	72.00
Eight credit hours .....	67.50	13.50	81.00
Nine credit hours .....	75.00	15.00	90.00

\*The general service fee does not include health service or student activity privileges.

The charge for auditing courses is the same as taking them for credit.

All graduate students who continue to use University services or facilities (including consultation with a major professor) will pay a special service fee of \$20 per semester or \$10 for each term of the summer session.

## PAYMENT OF FEES

All students registering are expected to pay full tuition and fees prior to or at the time of registration.

Included in the payment of tuition is a \$10 deposit which is not refundable, even in the event that the student does not complete registration or attend school. For special students (those who do not carry ten or more hours) the non-refundable deposit is \$5.

## LATE REGISTRATION FEE

Late registration fees are assessed all regular and special students for failure to complete registration on scheduled dates. (No exception is made regardless of the reason for being late.)

Failure to complete registration on scheduled dates.

1. First five regular school days following the scheduled registration date ..... \$ 5.00
2. After the fifth day following scheduled registration date ..... 10.00

Late fees for special students are assessed at 50 per cent of the rate for regular students.

**MISCELLANEOUS GENERAL FEES AND FINES**

Graduation fee, master's or doctor's degree (includes printing of thesis abstract) .....	\$20.00
Late application for graduation fee (for those who apply after January 15 for June commencement and after March 15 for August commencement) .....	3.00
Identification photo .....	.50
Change of registration fee, for each change slip presented after the first week of each semester .....	1.00
Change of grade fee (unless the change is the responsibility of the University) .....	3.00
Examination, special equivalency, per credit hour (the maximum fee in any one subject shall not exceed \$45) .....	7.50
Duplicate activity card .....	1.00
Transcript fee .....	1.00
(\$1.00 for first copy on every order, plus \$.50 for each additional copy.)	
Automobile registration and parking fee:	
Beginning of school year .....	5.00
Beginning of Second Semester .....	3.00
Traffic violation fines .....	1.00 to 5.00
Special service fee for unregistered graduate students who are using University facilities:	
Each semester .....	20.00
Each term of summer session .....	10.00
Thesis binding (4 to 5 copies) .....	11 to 13.00
Registration in Evening School. (All daytime students will be required to pay an additional fee of \$3 per credit hour for all hours carried under the Evening School Program.)	

**FEES FOR INSTRUCTION IN MUSIC AND SPEECH**

For fees in special private instruction in music and speech see the General Catalog, University Fees section.

**RENTALS**

Woodwind, brass, and string instrument rental per instrument, per semester .....	\$12.00
Harp, harpsichord, organ rental, one hour each day, per semester .....	15.00
Piano rental, one hour each day, per semester .....	7.50
Each additional hour per day, per semester .....	6.00
Practice room without a piano, one hour each day, per semester .....	4.50
Each additional hour per day, per semester .....	3.00
Locker rent (McKay Building and Eyring Science Center):	
1 semester .....	1.50
2 semesters .....	2.50
2 semesters and summer term .....	3.00
Key deposit .....	1.00
Replacement of lost key .....	1.50

**DEPOSITS**

Gymnasium towel check and padlock deposit (Maximum refund is \$2.50) ..	\$ 3.00
Botany 550. (Plant Physiology) .....	2.00
Botany 706 (Experimental Ecology) .....	2.00
Botany 712 (Plant Nutrition) .....	2.00
Chemistry (each laboratory class) .....	1.00



# *Student Academic Services*

## **Office of Admissions and Records**

The Office of Admissions and Records is primarily a service office for all Brigham Young University students from the date they apply for admission until they are graduated from the University. It is a service agency also to parents, to the faculty, to the State, and to various agencies who are eligible to receive information regarding the records of these students.

Student academic services performed by the Office of Admissions and Records for the University include:

- Admission of students
- Registration of students
- Preparation of class schedules
- Assignment of instructional space
- Assignment of office space
- Evaluation of transfer credit
- Evaluation of foreign student credit
- Graduation summary reports
- Academic grade reports
- General education program evaluation
- Transcripts of University credit
- Services to veterans
- Selective service information
- Statistical information
- Preparation of graduation lists

The dean of Admissions and Records has general supervision over the services listed above. It is his responsibility to initiate and to recommend regulations, policies, and procedures for implementing these student academic services and to administer the program of the Office of Admissions and Records as approved by the administration of the University.

## **Admission**

Students who apply for admission and who are accepted by Brigham Young University are required to maintain ideals and standards in harmony with those of the Church of Jesus Christ of Latter-day Saints.

**New Students from Foreign Countries.** To be admitted to the University, a student from a foreign country must present proper credentials.

Foreign student applications received on or before April 15 will be considered for the autumn semester. Applications received on or before August 15 will be considered for the spring semester. Applications for the summer term should be received on or before January 15.

**Former B.Y.U. Students.** All former B.Y.U. students who have discontinued school for one semester or more must apply for readmission. Readmission applications are furnished by the Office of Admissions and Records upon request.

Applications for readmission should be made at least **thirty days** prior to registration.

**Repeating Students.** Registration packets are prepared for all students in attendance at the University the previous semester.

**Summer School Students.** The same admission requirements as already outlined apply to new summer school applicants.

Those students who were in attendance at either of the two previous summer sessions need not apply for readmission. Registration packets are prepared for them.

**Notice of Acceptance.** A notice of acceptance will be promptly mailed to all new and former students who have been accepted by the University. A student with deficiencies will receive an answer to his application for admission outlining the problems involved.

## Registration

**Registration Procedure.** Details of the registration procedure are outlined in the class schedule issued each semester by the Office of Admissions and Records.

**Time of Registration.** Students are urged to register on the days set aside for registration (see University Calendar). A late fee is charged to each student who does not complete his registration on the specified days. The term "registration" refers to the entire procedure, including the payment of fees. A student may enroll in any class during the first three weeks of the semester if he has the permission of the instructor of the class and the approval of the dean of the Graduate School.

**Withdrawal from Classes.** Students discontinuing registration at the University are required to clear their termination through the office of the dean of the Graduate School.

Any student withdrawing from individual classes shall clear with the dean of the Graduate School.

- a. If a student officially withdraws from a class during the first three weeks of a semester, the permanent record will show no registration for the class in question.
- b. A student who is doing passing work in a course may drop the class between the third and twelfth week if such action is recommended by the teacher, the student's adviser, and the dean of his college, and if it is approved by the Academic Regulations Committee. A grade of "W" will be assigned for the class.  
A student who is doing failing work in a course may drop the class after the first three weeks if he has the approval of his adviser and the dean of his college and the teacher's signature. A grade of "WE" will be assigned for each class so dropped. A "WE" grade counts the same as an "E" grade in computing the grade-point average.
- c. If a student drops a class any time during the semester without officially withdrawing, he will receive a grade of "UW" (meaning unofficial withdrawal) in each course so dropped. This will indicate that the student has failed to clear officially with the University. A "UW" grade counts the same as an "E" grade in computing the grade-point average.

**Withdrawal from Evening School Classes.** Students who withdraw from classes for which they have registered in the Extension Services office must do so by notifying that office and completing the withdrawal forms. An evening school student who does not properly withdraw will receive a failing grade.

**Registration of Prospective Secondary Teachers.** All certificates for teaching, counseling, supervising, administration, and library work in the public schools of Utah are granted by the State Department of Public Instruction.

When all requirements for state certification have been fulfilled, students of the University who are registered in any of its colleges or in the Graduate School will be recommended for certification by the dean of the College of Education. This recommendation will be given just as readily to prospective second-



ary teachers who have registered in other colleges as to those who have registered in the College of Education; the dean of the College of Education acts merely in an administrative capacity as the representative of the University. However, all students in the teacher certification program, regardless of their college registration, are required to have an assigned adviser in the College of Education to approve the professional education sequence courses. Assignment of education advisers is made in the Teacher Certification Office.

Students who desire state certificates should make application with the dean of the College of Education through the Teacher Certification Office and not with the State Department of Public Instruction.

**Completion of Registration.** When the student has followed the prescribed registration procedure and has paid his fees, his registration is complete. The University will hold the student responsible for completion of the courses for which he has been enrolled, unless he obtains approval for a change in registration or files an official withdrawal from the University.

**Complete Withdrawal from the University.** Any student withdrawing from the University after the third week must be doing passing work in his classes if he is to discontinue without academic failure.

## Records

**Classification of Students.** At the beginning of each semester regular students will be classified for that semester.

A regular student who has completed all requirements for the bachelor's degree is classed as a graduate student. A graduate student or a student holding a bachelor's degree from a four-year accredited institution may register at Brigham Young University as follows:

- a. In the Graduate School under the regular requirements for an advanced degree.
- b. In the Graduate School as a non-degree seeking student.
- c. In an academic college of the University seeking a second bachelor's degree.

**Credits.** A student may have credit entered on the books of the University as follows:

- a. For work done in the regular courses offered by the institution.
- b. For work done in an accredited college when such credit is to be used for graduation from Brigham Young University. Credit from other schools should be filed with the Office of Admissions and Records upon application for admission to the University.

A fee of \$7.50 per credit hour is charged for special examinations provided the total fee for any one subject does not exceed \$45.00.

By payment of an auditing fee, a student may obtain permission to audit courses of instruction. Under no circumstances can credit be obtained by means of special examinations for courses which have been audited.

**Grading System.** The present grading system uses the letters A, B, C, and D, to indicate that the student receives credit, and E to indicate that no credit is allowed.

The "A" grade is given only to students whose intellectual capacity and actual academic achievement are of exceptional quality. Work of a quality somewhat higher than average but not of exceptional quality receives a "B". "C" indicates that the student has completed classroom work, outside assignments, and examinations in an average manner.

Students who fail to reach the average academic achievement, but who do work of a quality still acceptable to the University are given a "D" grade. A "D" grade draws credit even though the work done is not fully satisfactory. Students who fail to achieve work of minimum university quality receive an "E" grade. This grade mark draws no credit.

The letter "I" (incomplete) is used to indicate that the work is not yet completed. It should be given **only** when special arrangements for the completion of the specific work involved have been made between teacher and student. The "I" should **never** be given when the student has failed or is failing the course. A grade of "I" changes automatically to "E" in the Office of Admissions and Records unless the work is completed within one year from date the grade is given.

The letter "T" is used to indicate satisfactory progress in thesis work for the amount of credit registered for in a given semester. The final grade is given when the thesis is completed. The grade "I" should not be used to indicate thesis progress.

The letter "P" (passed) is used only in connection with the student teaching program of the College of Education of the University.

No final grade once recorded in the Office of Admissions and Records shall be changed except to correct the record when an error in calculation has been made by the teacher, in posting by the Data Processing Department, or in the Office of Admissions and Records, or by action of the Academic Regulations Committee. When such corrections need to be made, an official "Teacher Grade Change Authorization" form must be filled out; signed by the teacher, the chairman of the department, and the dean of the college; and sent directly to the Office of Admissions and Records.

Semester grade reports will be mailed to all students at the end of each semester. It is also the policy of the University to send semester grade reports to the parents of all single freshman students under twenty-one years of age and all unmarried students who are on academic probation.

## Veterans' Service

All veterans should have their military experience evaluated for credit by applying to the Office of Admissions and Records.

**Korean (P. L. 550).** Veterans who had active military duty any time after June 27, 1950, and prior to January 31, 1955, are eligible for veteran benefits under Public Law 550, 82nd Congress.

All veterans must begin their schooling under the Korean G.I. Bill within three years of their date of discharge or separation from the service. New veterans must make an application for eligibility. This application can be made upon the veteran's first arrival at the University. It is necessary to bring a copy of veteran's release from active duty, DD 214. A certified copy of a marriage certificate and/or child's birth certificate are necessary for veterans claiming dependents.

Veterans transferring their G.I. benefits from other schools to B.Y.U. must bring a certificate of eligibility restricted to B.Y.U. This must be obtained by making application at the last school attended.

**War Orphans Education Program (P. L. 634).** War orphans must bring a certificate of eligibility restricted to B.Y.U. before entering school under the War Orphan Program. This may be obtained by making application at the nearest Veterans' Administration Regional Office.

For further information concerning any educational benefits problem, please write to Veteran Coordinator, Office of Admissions and Records, Brigham Young University, Provo, Utah.



# *Student Personnel Services*

The Student Personnel Services offer valuable assistance in the following areas that affect graduate students: academic standards, counseling service, foreign students adviser, health services, Indian students, student organizations and social life, and student publications.

## **Dean of Students**

The Dean of Students is director of the Student Personnel Services. As such, he is expected to coordinate the agencies at work on student problems. He initiates and recommends to the administration needed policies and procedures in student life. It is his responsibility to administer the program recommended or approved by the administration in the various areas of Student Personnel Services.

## **Counseling Service**

The primary function of the Counseling Service is to help normal students make realistic decisions regarding their University careers. This organization provides the following services for graduate students: (1) counseling—educational, vocational, and other personal problems; (2) psychiatric; (3) testing; and (4) occupational information.

**Counseling.** The counselors offer assistance to each individual student, helping him make wise decisions in educational, vocational, and personal problems. The mature student will accept responsibility for the decisions arrived at in such counseling sessions.

**Psychiatric Service.** Limited psychiatric service is available for students with serious emotional problems. A psychiatric team composed of a psychiatrist, clinical psychologist, and a psychiatric social worker is available to make evaluations and recommendations concerning treatment. Limited psychiatric treatment is available for students who can be treated in a university setting. Such treatment is not available to all students, and referrals are often made to private agencies either in Utah or in the students' home towns. As in the case of all other counseling done in the Counseling Service, psychiatric treatment is completely confidential.

**Testing.** Although basic tests of achievement, ability, interest, and adjustment are given to all new lower-division students, upper-division and graduate students may avail themselves of the tests. The testing service provides psychological test data for the use of counseling and registration advisers, placement tests for various academic groups at the University, and assistance in the preparation, administration, and scoring of subject-matter tests as requested by various departments in the University.

**Occupational Information.** A comprehensive, current collection of essential occupational information is maintained in the Counseling Service Library. Current catalogs of the major universities and technical schools are also on file. These materials are available to all students seeking information about particular vocational opportunities or information about employment in general.

**Study and Reading Skills.** A study skills laboratory, available to all students, is maintained for the improvement of study habits. Remedial reading groups are formed each semester to assist students who have difficulty reading college materials. Emphasis in the reading groups is placed not on speed alone, but also on improving the student's reading comprehension. Application for membership in these groups is initiated by contacting the Counseling Service receptionist. Reading materials and equipment are also available to help the student increase his ability to read.

## Foreign Students Adviser

Services of the foreign students adviser are available to all students from countries outside of the United States. All alien students are expected to clear with him. Foreign students coming to the University should report first to the Foreign Student Office in the A. O. Smoot Administration Building.

## Student Health Service

The Howard S. McDonald Student Health Center on University Hill accommodates the health services, comprised of a large out-patient clinic and a small in-patient unit for cases requiring bed care. The center functions 24 hours daily, 7 days a week during school terms and is available to any regularly enrolled full-time student whose fees include these services for the semester in which he is registered. Summer students are included. Medical care to all eligible students is limited to the facilities and personnel in the health center.

The following services are provided without extra charge:

1. An initial complete physical examination, required of all entering students, to be performed at the health center and to include screening chest X-ray, audiometry, and urinalysis. This examination is also mandatory for students re-entering after a two-year absence.
2. Consultation with general physicians and specialists, by appointment, in the health center during regular clinic hours, 8:30 a.m. to 4:30 p.m. This includes a specialty clinic in orthopedics, general surgery, gynecology, internal medicine, and chiropody.
3. First aid treatment any time during the twenty-four hours of each day.
4. Immunizations as required for smallpox, diphtheria, or typhoid.
5. Physical therapy as recommended by a health center physician.
6. Routine laboratory tests.
7. Seven days of bed care in any one semester in the health center, as recommended by a health center physician, after which a minimum charge of \$2.50 per day is made. This includes post-surgical convalescence with the private physician continuing in attendance.
8. Certain procedures of public health importance, such as tuberculin tests, follow-up studies in infectious diseases, etc.
9. Within the limits of its personnel and facilities, and at the discretion of the director, the treatment of chronic disease suffered by students.

Some services require an additional charge and are supplied to the student at cost. These are:

1. Meals while a patient is in the center.
2. Drugs on prescription of a health center physician.
3. Special diagnostic laboratory tests.
4. Special immunizations, i.e., poliomyelitis, influenza, etc.
5. X-rays other than "screening" film. The health center regularly employs the technical personnel to take and interpret X-ray films. The student pays only the cost of materials.
6. After-hour calls by a physician in the clinic. The student pays \$2.00, the health center \$3.00 for each call. For house calls, the charges are double, both for student and the health center.
7. Rental of crutches.
8. Immediate notification of parents or guardian by the health center when a student is taken acutely ill.

Services **not** available:

1. Major surgery or off-campus hospitalization, except in instances where an injury is sustained while the student is representing the University through official assignment.
2. Dental service.
3. Obstetric services.
4. Eye refractions, glasses, prostheses, hearing aids, etc.
5. Ambulance service.



## University Standards

The maintenance of standards of honor and integrity, of graciousness in personal behavior, of Christian ideals in everyday living, of a high standard of morality, and of abstinence from alcohol and tobacco is required of every student.

Any pronouncement of disciplinary measures made by the President of the University becomes a part of these regulations. Violations of regulations may make the offender liable to suspension or expulsion from the University.

## OTHER SERVICES TO STUDENTS

### Placement Bureau

The Placement Bureau, located in the A. O. Smoot Administration Building, exists on the campus for the purpose of assisting graduating students and alumni to find desirable positions in their fields in business, industry, government, and education. This office works in close cooperation with deans and department chairmen.

The placement service includes a placement library where interested students may find books, articles, magazines, and brochures that will acquaint them with companies in which they may be interested and also books and pamphlets which will give advice on such matters as how to conduct oneself in an interview, how to write effective letters of application, how to find employment, etc.

All students are urged to register with the Placement Bureau early in the school year in which they will graduate so that that office may prepare early to give the most effective possible assistance in finding employment for each graduate.

### Student Employment

In the Placement Bureau, assistance is given to students in finding part-time employment. This includes help not only in placing students in positions on the University campus but also in finding part-time employment off campus and in finding work for board and room.

Students are encouraged not to attempt to earn their entire way through school. Such a program leaves little time for academic work (see scholarships). Furthermore, it is important to note that there is a maximum limit on the number of hours which a student may work on campus.

Students needing employment are urged to register with the Placement Bureau as soon as possible after they arrive in Provo and are available for work. Factors which weigh most heavily in deciding who shall receive leads for jobs are need, hours available, and possession of skills required by employers. Inasmuch as the number of students seeking part-time work is very high, those whose need is great are requested to report regularly at the Placement Bureau after filing their initial applications.

Students from foreign countries are required to obtain a work permit before they may take employment. Such students may receive assistance in obtaining the necessary permit from the foreign student adviser.

### Religious Opportunities

Brigham Young University students have excellent opportunities for participation in religious activities. Among the means available are the following:

**Brigham Young University Stakes.** There are three Brigham Young University stakes composed of twenty-eight wards and organized specifically for students, providing maximum opportunity for active participation in the program of the Church. Spiritual growth and the development of a strong testimony are goals fostered by the stake and ward organizations, whose programs are closely integrated at all levels with that of the University.

All single students living away from home establish their membership records in one of the wards of the stake. Married students who attend the University may elect to have their membership records either in a ward of one of the B.Y.U. stakes or in nearby wards in which they reside. Membership records of students remain in B.Y.U. stakes until they terminate their schooling at the "Y."

**Religious Organizations.** In addition to the twenty-eight wards on campus, several organizations are primarily religious in nature but also are social and service groups.

**Devotional Assemblies.** Devotional assemblies, held each Wednesday, enable students to hear messages of spiritual power and depth from carefully chosen Church leaders. It is contemplated that during each year all members of the First Presidency and of the Quorum of the Twelve Apostles will address the student body in the Wednesday devotional assemblies.

Security and Traffic

The Security Office is a protective agency established for the benefit of students, faculty, and staff. It maintains effective liaison with the local police department, and is entrusted with the proper enforcement of campus rules and regulations. All matters concerning security or requiring police action should be referred to this office.

Another major responsibility of the Security Office is the control of campus vehicle traffic and parking. In each academic year University staff members and students who operate vehicles in Utah County regularly or occasionally shall register any such vehicles with the University Traffic Department. In the case of students this is a registration for identification only, not a parking permit. All staff members and students who plan to park on University parking lots between 7 a.m. and 5 p.m. on school days must display a parking permit on their motor vehicles. The student parking fee for motor vehicles is \$5.00 per year.

The Security Office also offers many other services to students and staff members, including a Lost and Found Department; the taking of fingerprints necessary for teaching certificates, government jobs, and A.F.R.O.T.C.; and an ambulance service in connection with the Student Health Center.

All campus roads will be closed on Labor Day each year to preserve the private ownership thereof.

Lyceums and Forums

Almost since its founding, Brigham Young University has been bringing to its students distinguished men and women in arts and letters. The lyceums are evening programs of cultural value. Forum assemblies, held each Monday morning feature speakers and artists who can offer students a better understanding of our contemporary civilization. During the 1960 Summer Session and the 1960-61 regular school year, many speakers and artists of international reputation including the following were scheduled on the lyceum or the forum series:

Stewart Alsop .....	Editor
Christian Ferras .....	Violinist
Fernando Germani .....	Organist
Byron Janis .....	Pianist
Charles H. Malik .....	Former President of the United Nations
Admiral Ben Morreel .....	Former President, Jones and Laughlin Corporation
Vance Packard .....	Author
Jan Peerce .....	Metropolitan Opera Tenor
Andre Previn .....	Composer, Conductor, Pianist, Arranger
Leontyne Price .....	Metropolitan Opera Soprano
William L. Shirer .....	Author, Foreign Correspondent
Kenyon Scudder .....	Criminologist



# *Student Housing*

## **Campus Housing**

The Office of Student Housing, functioning under the Director of Student Housing, is established to assist students with their need for lodgings. All inquiries or administrative problems relating to housing needs should be referred to this office.

### **Applications**

A student who plans to enroll at the University and live in a University residence hall should make inquiry at the earliest possible date to the Office of Student Housing. A housing application form will be sent upon request. A \$10.00 application fee should be enclosed with the completed application form when it is returned to the Office of Student Housing. A residence hall assignment and appropriate "agreement forms" are prepared on the basis of the date of receipt of the application form by the Housing Office.

### **Acceptance**

The validating of any campus housing reservation is contingent upon the student's official acceptance and admission to the University.

### **Residence Halls for Women**

Housing for 1,548 women is provided on campus in 24 Heritage Halls. These are apartment-type buildings. Each apartment consists of a combination kitchen-dining-study room arrangement, three bedrooms, and a bath. In addition, there are large living rooms, a recreation room, head resident apartment, and laundry and storage facilities in each building. Six girls occupy an apartment and live cooperatively, preparing their own meals. The apartments are completely furnished except for bedding, kitchen utensils, and dishes. The facilities are excellent and offer a high standard of living for college students. The approximate annual rate for these accommodations is \$250.00. Food is purchased cooperatively by the residents of each apartment.

Help in the homemaking experiences of budgeting, buying, meal planning, and the selection, care, and construction of clothing is available from specialists who are assigned to Heritage Halls. In addition, a specialist is available to assist students in planning social activities, developing recreational skills, and learning wise use of leisure time.

The University operates four residence halls for women where board and room are provided. These four halls, Amanda Knight Hall, Knight-Mangum Hall, Budge Hall, and Merrill Hall, house 880 students. The halls, completely furnished, provide every modern convenience, including well-planned food service. A trained head resident lives in each hall. The approximate annual rate for these accommodations is \$595.00.

Each woman student who desires to live on campus should consider carefully the type of accommodations desired in view of her economic needs, time available for activities within her housing situation, and type of experience desired. Agreements are made for the year, and moving from one type of accommodation to another during the year cannot be arranged.

### **Residence Halls for Men**

Board and room services for 72 men are provided in Allen Hall which is located one block from campus. It provides sleeping rooms, dining hall, living and social room, study room, head resident apartment, and adequate laundry and storage rooms.

Board and room services for 1,170 men are provided on campus in six new buildings known as Helaman Halls. These buildings form a beautifully designed

residence hall development. There are five residence hall buildings conveniently grouped around an attractively planned and developed central building. Each residence hall accommodates 234 students, with two men sharing each bedroom. In addition, living rooms, study rooms, central shower areas, recreational rooms, adequate laundry and storage facilities, and a head resident apartment are found in each building. These halls provide some of the best student living experiences offered on any university campus. The central building features spacious dining rooms and a snack bar, providing the excellent food service for which B.Y.U. is noted. This building also contains beautiful living rooms, recreational areas, administrative offices, and other management facilities such as mail rooms, gun storage areas, and laundry and dry cleaning pick-up stations. The approximate annual rate for these accommodations is \$595.00.

### **Homes for Graduate Men**

Board and room service for a limited number of single graduate men is available in large homes used exclusively for graduate students. They are adequately equipped and provide for the specialized needs of the graduate student. The approximate annual rate for these accommodations is \$545.00.

### **Apartments and Homes for Married Students**

Family accommodations for 260 married couples and their children are provided in housing developments known as Wymount Village and Wyview Village.

Wymount Village consists of 110 apartments (efficiency, one-bedroom and two-bedroom). These buildings were acquired from the federal government and moved to their present site following World War II. The maximum monthly rental rate approximates \$40.00.

Wyview Village consists of 150 prefabricated homes purchased in 1956 from a federal government airbase and moved to a site adjacent to the campus. There are 100 two-bedroom and 50 three-bedroom homes. The monthly rental rates approximate \$50.00 for the two-bedroom and \$55.00 for the three-bedroom homes. Each family, in addition, pays for its own electricity.

Applications for apartments or homes are placed on the waiting list according to the size of the family needing accommodations. There is a six-month waiting list at the present time.

**Note:** The Residential Housing Office can assist married students to find suitable apartments in the Provo community. Approximately 1,000 such units are available to married couples.

## **Residential Housing**

In addition to the University Residence Halls, there is University approved student housing in private homes in the communities of Provo and Orem which consists of sleeping rooms, apartments, light housekeeping, and board and room arrangements. To receive University approval these facilities must meet certain minimum specifications. Students living in the community are expected to abide by the living standards of the University.

### **Listings**

Up-to-date listings of approved facilities are maintained by the Residential Housing Office, 1271 North 900 East, Provo, Utah. This office is established to assist students upon their arrival in Provo to find suitable quarters if they desire to reside in the community. It is impractical for students to make arrangement with landlords by mail as listings change daily and many landlords like to interview their prospective tenants.

### **Rates**

Rates for residential housing accommodations vary with the type of service provided, and consequently only a general indication can be given here. Sleeping



rooms rent from \$15 to \$25 a month. Apartment accommodations run from \$17 to \$25 per month per student. Board and room is available at \$55 to \$65 a month. Apartments for married students can be obtained at a rate of approximately \$45 to \$70 per month.

### **Approved Housing**

All students attending the University who are not living on campus or at home are required to live in University approved housing and to keep the University informed of any change of residence. Change of address cards are available in all housing offices and at the Information Booth.

### **Rental Agreements**

A student planning to live either in campus housing or in off-campus residential housing may expect to sign a rental agreement for the accommodations he will occupy. He should be prepared to live by the terms of this agreement once he has signed it. Misunderstandings and financial loss can be avoided by a student if he will read and familiarize himself with the terms of the agreement before signing. All campus accommodations are available on an annual basis only.

### **Time of Arrival**

Residence halls are not open to a student prior to the announced opening date, usually the day before freshman orientation. The University does not advise a student who is going to live in campus housing to arrive before that date. It is unwise for a student with nothing to do to live in a hotel or motel where there is no University supervision.

Through the listings available from the Residential Housing Office, accommodations in the community may be obtained in a comparatively short time. Very little time is required for a student to unpack and get settled whether it be on or off campus. It is best to arrive during office hours—8:00 a.m. to 5:00 p.m.

### **Food Service**

Regular meal service is provided for students at five different cafeterias on the campus. Four of these are operated as part of the board and room service of residence halls. It is possible for a student living off-campus to buy a meal ticket at reduced prices and eat in one of these places. The fifth cafeteria is in the Joseph Smith Building where meals are served at reasonable prices on a cash basis.

The University operates three snack bars, one in the Joseph Smith Building, a second in the George Albert Smith Fieldhouse, and a third in the Helaman Halls Cannon Center. Food is available in them throughout the day. Food may also be secured through vending machines located throughout the campus. Costs of meals and food service are kept as low as possible, consistent with sound operating management.

The University operates a creamery where milk, ice cream, and other dairy products may be purchased by students and faculty at very reasonable prices. Students preparing their own meals find this service desirable and economical.

# List of Courses

## General

### Course Numbering System.

Course Number	Type of Course
500 to 599	Advanced undergraduate or graduate
600 to 799	Graduate

**Credit Hour Designation.** The three-number code for credit hours, listed in parenthesis following the course title, has the following significance:

First number:	Semester hours of credit
Second number:	Class hours of lecture, recitation, or seminar meeting per week or Minimum hours of individual study required per week
Third number:	Laboratory hours required per week or Hours of field study or individual research per week

**Cross Referencing of Courses.** Each course is listed completely only once in the catalog. If the course may count in another department, it appears in a special grouping at the end of the course listing for that department.

**Graduate Courses.** Graduate credit is given for courses in the 500, 600, and 700 series if the student is registered in the Graduate School for these courses or if the student is a last semester senior and meets the Graduate School requirement for reserving these courses for graduate credit. No graduate credit is given for such courses with a grade lower than "C." No graduate credit is given for correspondence courses.

**Reservation of Right to Change Courses.** At the time of printing of this catalog, the University intends to give the courses listed herein, but reserves the right to eliminate or discontinue any of them or to add new courses.

Professors listed under each department title include members of the graduate faculty only.

## Accounting

**Professors:** R. J. Smith (chairman, 350 JK), Andersen.

**Associate Professor:** Johnson.

**Assistant Professor:** Orton.

### Requirements

A prospective major in this field must have as a minimum background Accounting 212, 302, and those classes prerequisite thereto or the equivalent thereof. and he should preferably have a full undergraduate major in the field. A student may be accepted for major study in this field when he has completed Accounting 212, but he would be required to complete courses 301 and 302 before taking any graduate work; these courses could not be applied on his master's program.

### Graduate Courses

**501 (440, 570). Advanced Accounting.** (3:3:0) F. and alternate summers. Prerequisite: Accounting 302. Western

Includes joint ventures, consignments, installments, receiverships, estates and trusts, statements of affairs, and municipal and government accounts.



- 502 (570). **Advanced Accounting.** (3:3:0) S. and alternate summers. Pre-requisite: Accounting 302. Western  
Home office and branch accounts and parent and subsidiary accounting.
- 512 (584). **Advanced Cost Accounting.** (2:2:0) F. Prerequisite: Accounting 212. Orton  
Budgeting, standard costs, and cost analysis.
- 515 (572). **Controllership.** (3:3:0) S. Prerequisites: Accounting 302 and 512. Orton  
Organization of controller's office, control techniques, interpretation of financial data, and policy formulation.
- 521 (582). **Advanced Tax Problems.** (2:2:0) S. Prerequisite: Accounting 420. White  
Advanced study of federal income tax, estate and gift taxes, and special problems in corporate taxation.
- 555 (555). **Advanced Data Processing.** (3:3:0) F. Prerequisite: Accounting 255. Johnson  
Principles governing design and installation of accounting systems and the selection of equipment for optimum performance in data processing cycles.
- 556 (556). **Electronic Computer Programming.** (3:3:1) F.S. Prerequisites: Accounting 132 and Statistics 221; recommended prerequisite: Accounting 255. Johnson  
Basic computer logic, binary notation, operational coding, flow charting, iterative routines, subroutines, library programs, optimum coding, symbolic coding, and data processing application.
- 557 (557). **Advanced Computer Programming.** (2:1:2) S. Prerequisite: Accounting 556. Johnson  
Emphasis on the solution of practical problems in data processing. Individual work on the University's computer and comparison of various computers in current use.
- 565 (565, 571). **Auditing Theory and Professional Ethics.** (3:3:0) F.S.Su. Prerequisite: Accounting 302. White  
Principles and methods of public accounting, professional responsibility and conduct, and verification techniques of accounts and financial statements.
- 566 (565). **Auditing Practice.** (2:2:0) F.S. Prerequisite: Accounting 565. White  
Practice in auditing techniques, including report writing and filings with regulatory bodies.
- 575 (545). **Theory of Accounts and Statements.** (3:3:0) F. Prerequisite: Accounting 201 or 211. Smith  
History and development of accounting and financial statements, their meaning and interpretation. Problems in current accounting theory will be considered.
- 586, 587 (586, 587, 588). **C.P.A. Problems.** (4:3:1) F.S. Prerequisites: Accounting 302, 420, and the following which should be taken before or concurrently: Accounting 501, 502, 565. Smith  
Preparation for professional examination.
- 593 (593). **Reading and Conference.** (1-3:1-3:0) F.S.Su. Staff  
Subject to be arranged with instructor.
- 596 (596). **Accounting Internship.** (1-3:0:Arr.) F.S.Su. Recommended prerequisite: Accounting 565.  
Internship must be arranged in advance with department and company.
- 699 (699). **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff  
This course number should also be used for non-credit continuing registration for students working on theses.

## Agricultural Economics

**Associate Professor:** Corbridge (chairman, 171 Brimhall), Gardner.

### Requirements

A graduate degree is not offered in agricultural economics, but graduate credit in the following courses may be applied toward a minor in a field closely related to agricultural economics.

### Graduate Courses

- 525 (525). Production Economics.** (2:2:0) S. Prerequisite: Economics 112. Gardner  
 Principles concerning the optimum combination of productive resources within the farm firm and between firms.
- 580 (580). Agricultural Policy.** (2:2:0) S. Gardner  
 The theoretical and institutional setting of the agricultural industry, the objectives of farm policy, and the means of achieving these objectives. Includes a study of existing and proposed farm legislation.
- 590 (590). Seminar.** (1:1:0) S. Staff
- 595 (595). Individual Readings.** (1-3:Arr.:Arr.) F.S. Staff
- 597 (597). Individual Research.** (1-3:Arr.:Arr.) Staff

The following course is applicable in agricultural economics:  
**Statistics 531. Experimental Design.** (2:2:0)

## Agronomy

**Professors:** Farnsworth (chairman, 172 Brimhall), Hallam, Laws.  
**Associate Professor:** Allred.

### Requirements

A student preparing for graduate work in agronomy is urged to obtain a thorough knowledge of introductory physics, chemistry, mathematics, botany, bacteriology, and geology. Opportunity will be afforded for further study in some of these subjects after entering the Graduate School, but a student deficient in these foundation courses cannot expect to receive an advanced degree in the minimum time otherwise required.

The Agronomy Department has established the following minimum requirements for permission to study toward a master's degree:

Satisfactory completion of the following undergraduate courses or their equivalents: Chemistry 111, 112, 113, 221, plus one year of upper division chemistry; Mathematics 111, 112, 213; Geology 111; Bacteriology 121; Physics 211, 213; Botany 101, 440. If a student is emphasizing crops, Botany 440 may be applied toward the graduate program and need not be completed as undergraduate work. If, however, this course has been taken as undergraduate work, more time will be afforded for graduate courses.

### Graduate Courses

- 503 (503). Soil Chemistry.** (2:2:0) S. Prerequisite: Chemistry 221 or consent of instructor. Hallam
- 505 (506). Soil and Plant Analysis.** (3:1:6) S. Prerequisites: Agronomy 305, Chemistry 220 or 221.  
 Laboratory chemical analysis of soils and plant materials; use of radioactive materials in soil fertility research; use, care, and measurement of radioactive materials.
- 605 (605). Chemistry of Soil-Plant Relationships.** (3:3:0) F. Hallam
- 607 (601). Soil Physical Conditions.** (3:2:3) S. Staff



614	(614, 615). Advanced Soil Microbiology. (3:2:3) S. Prerequisites: Agronomy 305, Bacteriology 121, Chemistry 221.	Agron-Hallam
659	(659). Advanced Plant Breeding. (2:2:0) F.	Allred
694	(694). Seminar. (1:1:0) F.S.Su.	Staff
697	(697). Research. (Arr.) F.S.Su.	Staff
698	(698). Agricultural Literature. (Arr.) F.S.Su.	Staff
699	(699). Thesis for Master's Degree. (1-6:Arr.:Arr.) F.S.Su.	Staff

## Animal Husbandry

**Professors:** Morris (chairman, 150 Brimhall), Cannon.

**Associate Professors:** Richards, Shumway.

**Assistant Professor:** Hoopes.

### Requirements

A student contemplating graduate study in animal husbandry must have received his bachelor's degree in this field or have completed courses with an equivalent background. His undergraduate courses should have included approximately 35 hours taken from the following subjects or their equivalent of which twenty hours made up his minor:

Bacteriology 121, 321, 331, 371, 501.

Botany 101, 376.

Chemistry 102, 111, 112, 113, 221, 284, 351, 352, 581, 582.

Statistics 221, 431.

Zoology 365, 376.

The student may select his minor field from among the following areas: agricultural economics, bacteriology, botany, chemistry, education, or zoology.

All students seeking a master's degree in animal husbandry should enroll in English 99, a non-credit course, "Problems in Thesis Writing."

### Graduate Courses

507	(427, 477, 607). Animal Nutrition. (4:3:2) F.	Morris
515	(362, 515). Advanced Animal Breeding. (3:3:0) S.	Richards
560	(460, 564). Advanced Dairy Production. (4:3:3) S.	Richards
571	(571, 572). Advanced Poultry Practices. (1-2:0:Arr.) F.S.	Morris
592	(592, 593). Seminar. (2:2:0) S.	Cannon
A critical review and analysis of current research, findings, and methods in animal agriculture.		
601	(601). Experimental Techniques and Design. (2:2:0) F.S.	Cannon
660	(660). Advanced Livestock Management. (2:1:3) S.	Cannon
		Staff
691, 692	(691, 692, 693). Animal Husbandry Research. (1-2:0:3-6) F.S.	Staff
694, 695	(694, 695, 696). Animal Husbandry Research. (1-2:0:3-6) F.S.	Staff
699	(699). Thesis for Master's Degree. (2-6:Arr.) F.S.Su.	Staff

The following course is applicable in animal husbandry:

Statistics 531. Experimental Design. (2:2:0)

## Archaeology

**Professor:** Jakeman.

**Associate Professor:** Christensen (chairman, 203 ESC).

### Requirements

Admission as a graduate major or minor in archaeology requires the previous completion of an undergraduate minor or equivalent training and experience in this subject.

The following courses in this department are required of the candidate for the master's degree majoring in archaeology (unless previously taken for undergraduate credit): 500, 551, 571, 590, 690, and 695 or 696.

A thesis is required of the candidate for the master's degree majoring in archaeology. It may be either a field report or an interpretative study and must present worthwhile new data or concepts, must be of professional caliber, and must be suitable for publication.

### Graduate Courses

- 500 (601). History and Theory of Archaeology. (3:3:0)** Not given this year. Prerequisite: Archaeology 200. Christensen

A survey of the historical development of archaeology, with special attention to the theoretical foundations upon which this discipline has been built.

- 551 (531, 551). Methods of Archaeological Research—General and Field. (4:0-2:4-8)** F. Prerequisite: Archaeology 200. Christensen

The steps in an archaeological research project; an introduction to field and laboratory methods, including student excavation of a prehistoric site in Utah Valley.

- 571 (571). Methods of Archaeological Research—Interpretative. (3:3:0)** S. Prerequisite: Archaeology 551. Christensen

Interpretation of empiric archaeological data as to culture units and their character and content; methods of chronological interpretation; and practice in archaeological ethnography and historiography.

- 590 (596, 597, 598). Recent Developments in Archaeology. (4:2:6)** Not given this year. Prerequisites: Archaeology 310, 318, or 327; 440 or 480; and 500. Jakeman

Includes individual reports in two of the following fields: Near Eastern-biblical. Mediterranean (Aegean-classical-Christian), northern European, African, central and eastern Asiatic, Oceanian, Middle American, South American, North American.

The emphasis of the following courses is on the two fields of historical (and late prehistoric) archaeology bearing upon the fundamental problem of the origin of civilization in the Old and New Worlds; i.e., Near Eastern and Middle American-Andean archaeology.

A course in the reading of ancient Mesopotamian cuneiform inscriptions, Egyptian hieroglyphics, or Hebrew inscriptions (see Department of Biblical Languages) should if possible be taken before the course "Library Research in Near-Eastern Archaeology" (695), while the course in the reading of ancient Maya and Aztec hieroglyphics (631) should if possible be taken before the course "Library Research in Middle American-Andean Archaeology" (696).

- 631 (671, 672). Introduction to the Reading of Maya and Aztec Hieroglyphics. (3:1:6)** F. Prerequisite: an undergraduate minor in archaeology. Jakeman

- 641 (590). Museum Methods and Teaching of Archaeology. (3:1:6)** F. Prerequisite: an undergraduate minor in archaeology. Christensen

In-service training in archaeological museum methods and in the teaching of archaeology.

- 651 (590, 621, 631). Advanced Field Methods of Archaeology. (5:0:15)** Not given this year. Prerequisites: an undergraduate minor in archaeology and course 551. Staff

Further in-service training in archaeological field methods as a member of one of the Brigham Young University archaeological expeditions to Mexico and Central America.

- 690 (594). Seminar in Historical Archaeology. (2:2:0)** F. Prerequisites: an undergraduate minor in archaeology and course 590. Jakeman

Problems in historical archaeology, particularly the archaeology of the scriptures.



- 695 (650, 655). Library Research in Near-Eastern Archaeology.** (2:0:6) F. Must be taken concurrently with Archaeology 690. Staff  
Independent library research in oriental or biblical archaeology (Mesopotamian, Iranian, Egyptian, Syro-Palestinian, general oriental, or general biblical).
- 696 (660, 665). Library Research in Middle American-Andean Archaeology.** (2:0:6) F. Must be taken concurrently with Archaeology 690. Staff  
Independent library research in Middle American or Andean archaeology (Mesoamerican or Peruvian archaeological and chronicled history, Mesoamerican hieroglyphic decipherment, or research in the origin of the Middle American-Andean civilizations).
- 697 (695, 696). Field Research.** (5-10:0:15-30) Not given this year. Prerequisites: Archaeology 590 and 651 (latter may be taken concurrently). Staff  
Participation in an archaeological excavation in the Near East or Middle America, with opportunity for independent field research at the same or a nearby site.
- 699 (699). Thesis for Master's Degree.** (1-6:0:15) S.Su. Prerequisites: Archaeology 571 and 695, 696, or 697. Staff

## Art

**Professors:** Andrus (chairman, 315 E), deJong.  
**Associate Professors:** Gunn, Turner\*.

### Fields

1. Painting and sculpture.
2. Design (crafts, commercial art, printmaking, interior design).

### Requirements

A student expecting to major in painting and sculpture or design should have an adequate background in basic drawing, elementary design, and twenty semester hours of upper division work, including art history. A student may take both his major and minor in the Department of Art. If he is deficient in foundation training, opportunity may be given to correct this deficiency after he enters Graduate School.

### Graduate Courses

- 501 (501). Aesthetics.** (2:2:0) S. deJong  
Theoretical and practical criteria of aesthetic values.
- 544 (544, 545). Portfolio Preparation.** (2:3:0) F. Prerequisites: Art 122, 239, 341, 342. Gunn  
An analysis of individual strengths and weaknesses. Specialization opportunities provided in various areas of commercial design and display. Preparation of portfolio emphasized.
- 546 (545, 546). Advanced Commercial Art.** (3:4:0) S. Prerequisite: Art 544. Gunn  
Professional standards in a specialized field of commercial art emphasized. Students judged proficient by a faculty committee are given experience in a practicing agency.
- 580 (580, 581). Mural Painting.** (2:4:0) F. Prerequisites: Art 310, 321 or 322. Darais  
Historical backgrounds, design, and execution of murals.
- 582 (581, 582). Mural Painting.** (2:4:0) S. Prerequisites: Art 310, 321 or 322. Darais  
Historical backgrounds, design, and execution of murals.
- 586 (586, 587). Studio Art.** (1-3:2-4:2-4) F.Su. Prerequisite: permission of department chairman. Staff

- 588 (587, 588). **Studio Art.** (1-3:2-4:2-4) S. Prerequisite: permission of department chairman. Staff
- 615 (615, 616). **Period Furnishings and Other Decorative Material for Interior Design.** (3:3:0) F. Staff
- 617 (616, 617). **Practical Problems in Interior Design.** (3:3:0) S. Staff
- 621 (621, 623). **Advanced Drawing and Painting.** (1-3:Arr.:Arr.) F. Andrus
- 622 (622, 623). **Advanced Figure Drawing and Painting.** (1-3:Arr.:Arr.) S. Andrus
- 624 (624). **Advanced Landscape Painting.** (1-3:Arr.:Arr.) F. Turner
- 625 (625, 626). **Advanced Still Life Painting.** (1-3:Arr.:Arr.) S. Turner
- 627 (627). **Pictorial Composition.** (1-3:Arr.:Arr.) F. Turner
- 629 (628, 629). **Pictorial Design.** (1-3:Arr.:Arr.) S. Darais
- 633 (633, 634). **Advanced Water Color Painting.** (1-3:Arr.:Arr.) F. Turner
- 635 (635). **Advanced Aqueous Painting Media.** (1-3:Arr.:Arr.) F. Turner
- 639 (639). **Advanced Layout.** (1-3:Arr.:Arr.) F. Gunn
- 642 (642). **Advanced Illustration.** (1-3:Arr.:Arr.) S. Gunn
- 650 (650, 651). **Advanced Relief and Intaglio Printmaking.** (1-3:Arr.:Arr.) F. Andrus
- 652 (651, 652). **Serigraphy and Color Lithography.** (1-3:Arr.:Arr.) S. Andrus
- 656 (656, 657). **Advanced Sculpture.** (1-3:Arr.:Arr.) F. Staff
- 658 (657, 658). **Advanced Sculpture.** (1-3:Arr.:Arr.) S. Staff
- 665 (665). **Advanced Ceramics.** (1-3:Arr.:Arr.) F.S. Staff
- 666 (666). **Advanced Metal and Jewelry Design.** (1-3:Arr.:Arr.) F.S. Staff
- 668 (668). **Teaching Art.** (1-3:Arr.:Arr.) S. Staff
- 671 (671). **Survey of Recent Studies in Art Education.** (1-3:Arr.:Arr.) F. Gunn
- 674 (674, 675). **Advanced Portrait Painting.** (1-3:Arr.:Arr.) F. Andrus
- 676 (675, 676). **Advanced Figure Painting.** (1-3:Arr.:Arr.) S. Andrus
- 680 (680, 681). **Advanced Mural Design and Painting.** (1-3:Arr.:Arr.) F. Darais
- 682 (681, 682). **Advanced Mural Design and Painting.** (1-3:Arr.:Arr.) S. Darais
- 686 (686, 687). **Studio Art.** (1-3:Arr.:Arr.) F. Staff
- 688 (687, 688). **Studio Art.** (1-3:Arr.:Arr.) F. Staff
- 690 (690, 691). **Color.** (2:2:0) F. Andrus
- 692 (691, 692). **Color.** (2:2:0) S. Andrus
- 695 (695). **Seminar.** (1:1:0) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S. Staff

## Bacteriology

**Professors:** Beck, Larsen.

**Associate Professor:** Donaldson\*.

**Assistant Professors:** Sagers (chairman, 110 Brimhall), Hoskisson.

### Requirements

Adequate preparation for graduate work in the Department of Bacteriology presupposes satisfactory training in the physical and biological sciences. If a student is deficient in foundation courses, opportunity will be given after entering Graduate School to correct these deficiencies; however, such a student will not be able to receive the advanced degrees in the minimum time required of more qualified candidates. Prior to acceptance as a graduate major in the De-



partment of Bacteriology, credit will be evaluated with particular emphasis placed on the applicant's training in qualitative, quantitative, organic, and biological chemistry; mathematics; zoology; botany; and physics.

### Master's Degree

All students receiving advanced degrees in bacteriology are required to have completed the following courses or equivalents: Bacteriology 331, 501, 511, 531, 551; one year of inorganic college chemistry; one year of organic chemistry; one semester of quantitative analysis; one year of biochemistry; one year of college physics; and Mathematics 111.

### Doctor of Philosophy Degree

Prior to selection of a dissertation subject and assignment to a research adviser, the student must pass a written qualifying examination in the following areas: (a) general microbiology, (b) pathogenic microbiology, (c) immunology, (d) virology, (e) bacterial physiology, and (f) bacterial genetics. This examination will normally be given after one year of graduate study, or in case the student has received the master's degree, at the beginning of work for the Ph.D. degree. After satisfactory completion of the qualifying examination the student will be assigned a permanent advisory committee the chairman of which will be his major research adviser.

A comprehensive oral examination will be taken not earlier than one year after completion of the qualifying examination. Prior to admission to the comprehensive examination the student must have satisfactorily completed courses in differential and integral calculus and physical chemistry.

### Graduate Courses

- 501 (501). Pathogenic Microbiology.** (4:2:6) S. Prerequisite: Bacteriology 331 or consent of instructor. Larsen  
The characteristics of pathogenic bacteria, viruses, rickettsia, yeasts, and molds.
- 502 (502). Pathogenic Microbiology.** (2:1:3) F. Prerequisite: Bacteriology 501. Larsen  
Continuation of Bacteriology 501.
- 511 (511). Immunology.** (3:2:3) F. Prerequisite: Bacteriology 501 or consent of instructor. Donaldson  
Theories of immunity; training in serological methods.
- 521 (521). Industrial Microbiology.** (2:2:0) F. Prerequisites: Bacteriology 331 and biochemistry. Larsen  
The role of microorganisms in the production of such products as acids, alcohols, antibiotics, vitamins, and enzymes.
- 522 (522). Industrial Microbiology Laboratory.** (1:0:3) F. Prerequisite: completion of or concurrent registration in Bacteriology 521. Larsen
- 531 (531). Virology.** (2:2:0) S. Prerequisite: Bacteriology 501. Staff  
Characteristics of viruses and virus diseases.
- 532 (532). Virology Laboratory.** (1:0:3) S. Prerequisite: completion of or concurrent registration in Bacteriology 531. Staff
- 541 (541). Cultivation and Nutrition of Bacteria.** (2:0:6) S. Prerequisite: Bacteriology 331. Sagers  
A laboratory study of selective enrichment technique, fundamental nutritional requirements, and growth properties of the major taxonomic groups of bacteria.
- 551 (551, 651). Advanced Microbiology.** (3:3:0) S. Prerequisite: Bacteriology 331. Beck, Sagers
- 552 (552, 652). Advanced Microbiology Laboratory.** (1-2:0:3-6) S. Prerequisite: completion of or concurrent registration in Bacteriology 551. Beck, Sagers
- 561 (561). Radioactive Tracer Techniques in Biology.** (2:0:6) F. Prerequisite: consent of instructor. Beck

- 581 (581). **History of Bacteriology.** (1:1:0) F. Prerequisite: senior or graduate status. Larsen
- 611 (611). **Advanced Immunology.** (2:2:0) S. Prerequisite: Bacteriology 511. Donaldson
- 651 (New). **Special Topics in Bacterial Metabolism.** (2:2:0) F. Prerequisite: Bacteriology 552. Beck
- 661 (661). **Bacterial Genetics.** (2:2:0) F. Prerequisites: Bacteriology 331, course in general genetics, and Chemistry 582 or equivalent. Staff  
Genetic processes in bacteria and viruses with special emphasis on recombination, transduction, mutation, replication mechanisms, and related topics.
- 662 (New). **Bacterial Genetics Laboratory.** (1:0:3) F. Prerequisite: completion of or concurrent registration in Bacteriology 661.
- 691 (691). **Graduate Seminar.** (1:1:0) F.S. Staff
- 695 (695). **Research to Furnish Data for Thesis.** (1-10:Arr.:Arr.) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S. Staff
- 797 (New). **Doctoral Candidate Research.** (Arr.) F.S. Staff
- 799 (New). **Dissertation for the Ph.D. Degree.** (Arr.) F.S. Staff

The following course is applicable in bacteriology:  
Agronomy 614 **Advanced Soil Microbiology.** (3:2:3)

## Bible and Modern Scripture

**Professors:** Done, Ludlow, Sperry, Yarn.

**Associate Professors:** Barron (chairman, 316 JK), Andrus, Clark.

**Assistant Professor:** Turner.

### Requirements

The Department of Bible and Modern Scripture offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before beginning work leading to one of these degrees. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility of knowing and fulfilling these regulations and requirements rests with the student.**

A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the chairman of graduate studies in religion.

### Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program and make its recommendation to the dean of the Graduate School. After acceptance the student will be assigned to an advisory committee.

### Doctor of Philosophy Degree

The student must achieve a thorough mastery of his major, minor, and related fields, a program requiring a minimum of 90 semester hours. Part of this requirement may be fulfilled in the completion of the "core" courses listed below.

One foreign language is required before admission to the doctoral program. Upon completion of the "core" requirements with distinction ("B" grade or better), normally two years, a student must pass a series of written comprehensive examinations and an oral examination on the subject matters represented in



the "core courses. Should the student fail the examinations, the question of whether or when he may repeat them will be determined by his advisory committee in consultation with the admissions committee. The comprehensive examinations may not be attempted more than twice. In addition to the "core" requirements the student will be expected to complete at least 30 hours of specialization.

**"Core" Courses:** Bible and Modern Scripture (Bible) 411, 501, 502, 503, 511, 512; (Scripture) 527, 621, 624; History and Philosophy of Religion (History of Religion) 441, 442, 451, 452, 555, 556, 645, 646, 657, 658; (Philosophy) 480, 580, 581, 583, 584; Religious Education 670; Theology 530.

## BIBLE

### Graduate Courses

501	(304). Analysis of the Old Testament: The Pentateuch and Historical Books. (3:3:0) F.S.Su.	Staff
502	(603). Analysis of the Old Testament: Prophetic Books. (2:2:0) F.	Staff
503	(606). Analysis of the Old Testament: Poetic and Wisdom Literature. (2:2:0) S.	Staff
611	(624). Paul's Life and Letters. (2:2:0) F.	Ricks, Sperry, Turner
512	(625). The General Epistles and the Apocalypse. (2:2:0) S.	Ricks, Sperry, Turner
513	(622). New Testament Times. (2:2:0) S.Su.	Ricks, Sperry
601	(602). History of the Hebrews. (3:3:0) F.S.	Sperry
604	(601). The Literature of the Old Testament. (2:2:0) F.S.	Sperry
605	(604). Canon and Text of the Old Testament. (2:2:0) S.	Staff
606	(605). The Apocrypha and Pseudepigrapha. (2:2:0) S.Su.	Nibley
607	(619). Religion of the Old Testament. (2:2:0) F.Su.	Staff
608	(607). Cultural and Religious Patterns of the Ancient Near East. (2:2:0) S.Su.	Sperry
610	(621). Early Christian Literature. (2:2:0) F.Su.	Staff
611	(626). Formation of the New Testament: Text and Canon. (2:2:0) S.Su.	Ricks Sperry
612	(627). Textual Criticism of the New Testament. (2:2:0) S.Su.	Staff
709	(590). Seminar: Old Testament. (2:2:0) F.S.Su.	Staff
710	(649). Seminar: New Testament. (2:2:0) F.S.Su.	Staff
711	(641). Readings in Greek: The Gospel and Acts. (3:3:0) F. Prerequisite: ability to pass departmental examination in Greek.	Staff
712	(642). Readings in Greek: Paul's Letters. (3:3:0) S. Prerequisite: ability to pass departmental examination in Greek.	Staff
713	(643). Readings in Greek: General Epistles and the Apocalypse. (3:3:0) S.Su. Prerequisite: ability to pass departmental examination in Greek.	Staff

## SCRIPTURE

### Graduate Courses

527	(653). History and Doctrines of the Pearl of Great Price. (2:2:0) F.S.Su.	Andrus, Clark
621	(524). Analysis of the Book of Mormon. (3:3:0) F.S.Su.	Ludlow, Ricks, Sperry
624	(652). Analysis of the Doctrine and Covenants. (2:2:0) F.S.Su.	Andrus, Doxey
627	(592). Seminar: Pearl of Great Price. (2:2:0) F.S.Su.	Andrus, Clark
699	(699). Thesis for Master's Degree. (1-6:Arr.:Arr.) F.S.Su.	Staff

- 721 (651). Seminar: Book of Mormon. (2:2:0) F.S.Su. Ludlow, Ricks, Sperry  
 724 (591). Seminar: Doctrine and Covenants. (2:2:0) F.S.Su. Andrus, Doxey  
 728 (659). Readings in Modern Scripture. (1-2:Arr.:Arr.) F.S.Su. Staff  
 799 (799). Doctoral Dissertation. (Arr.) F.S.Su. Staff

## Biblical Languages

**Professors:** Nibley. Sperry.

**Assistant Professor:** Rasmussen (chairman, 19 PhP).

### Requirements

The Department of Biblical Languages offers training leading to the Master of Arts degree. A student must have adequate preparation on the undergraduate level before beginning work leading to this degree. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. The responsibility of knowing and fulfilling these regulations and requirements rests with the student.

A statement of detailed requirements and procedures of the graduate program may be obtained upon request from the chairman of graduate studies in religion.

### Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program. After acceptance the student will be assigned to an advisory committee.

### Graduate Courses

- 591, 592 (511, 512, 513). Biblical Hebrew. (5:5:0 ea.) F.S. Rasmussen  
 A beginning course in the classical Hebrew of the Old Testament. Valuable for students and teachers as a tool for interpreting and appreciating the Bible.
- 593, 594 (514, 515, 516). Hebrew Grammar and Selected Readings. (3:3:0 ea.) F.S. Prerequisites: Biblical Languages 591 and 592 or equivalent acquaintance with Hebrew. Rasmussen
- 690 (601, 602). Readings in Hebrew Old Testament. (3:3:0) F. Prerequisite: two years of Hebrew, or consent of instructor. Rasmussen, Sperry
- 691 (602, 603). Readings in Hebrew. (3:3:0) S. Prerequisite: Hebrew 690. Rasmussen, Sperry
- 693, 694 (607, 608, 609). Biblical Aramaic and the Targums. (2:2:0 ea.) Su., 1961. Prerequisite: at least one year of Biblical Hebrew. Sperry
- 699 (699). Thesis for Master's Degree. (Arr.) F.S.Su. Staff
- 791 (611, 612, 613). Syriac. (5:5:0) F., 1961. Prerequisite: two years of Biblical Hebrew or one year Aramaic. Sperry
- 792 (614, 615, 616). Syriac. (3:3:0) S., 1962. Prerequisite: Biblical Languages 791. Sperry
- 793, 794 (621, 622, 623). Akkadian. (2:2:0 ea.) F.S., 1962-63. Prerequisite: two years Biblical Hebrew. Sperry
- 797, 798 (New). Ugaritic. (3:3:0) (2:2:0) Su., 1962. Prerequisite: two years Biblical Hebrew. Staff
- The alphabet, vocabulary, and grammar of the language of the Ras Shamra tablets. Valuable for its parallels to Biblical Hebrew.



For other language courses pertinent to scriptural studies, see the offerings of the Language Department of the College of Humanities and Social Sciences. Such courses as classical Greek, classical Latin, the Latin fathers, Arabic, and modern first year Hebrew are available.

## Botany

**Professor:** Harrison (chairman, 232 Brimhall).

**Associate Professors:** Christensen, McKnight, Stutz.

**Assistant Professors:** Moore\*, Murdock, Welsh.

### Requirements

A student working toward a graduate degree in botany should have a basic understanding of general botany, taxonomy, genetics, morphology, physiology, and ecology. It is assumed that he will also have training in mathematics, chemistry, physics, bacteriology, soils, and zoology adequate for advanced study in the area of his specialization. Where deficiencies exist provision may be made for correcting them.

An advisory examination is required of all candidates for graduate degrees. The examination is to provide a means for evaluation of the student's preparation in the major fields of botany. This examination should be completed by the end of the first full semester of graduate study.

### Master's Degree

The requirements for the master's degree in botany are those listed above and the general requirements of the Graduate School.

### Doctor of Philosophy Degree

In addition to the general Graduate School requirements for the Doctor of Philosophy degree, students in the Department of Botany will be required to satisfy the following special requirements

One major area of specialization within the department is required. One minor area of specialization within the department, consisting of at least 15 semester hours, and one minor sequence outside the department, consisting of at least 15 hours, are required.

Students will be required, normally, to complete a master's degree before undertaking the doctorate program.

The comprehensive examination will be allowed after at least one full year of graduate study and after the language requirement has been met successfully. It will be an oral examination and will explore thoroughly the student's background in the major areas of botany, including basic undergraduate work when this seems desirable.

The student will conduct original research leading to a satisfactory dissertation that makes an original contribution to knowledge.

### Graduate Courses

501 (175). **Histological Technique.** (2:0:6) F. Prerequisites: Botany 101 or Zoology 105, and Botany 201. Moore

510 (604). **Advanced Taxonomy.** (3:1:6) S.Su. Prerequisites: Botany 110 and 176 or consent of instructor. Staff

525 (355). **General Cytology.** (3:2:3) F. Prerequisite: Botany 101 or Zoology 105. Moore

550 (New). **Plant Geography.** (3:2:3) F. (Offered alternate years) Christensen

Plant distribution and the origin of plant communities in the light of present and recent geological conditions.

561 (571). **Watershed Management.** (2:2:0) S. (Field trips to be arranged) Murdock

- 591 (590, 591). Seminar. (1:1:0) F. Staff
- 598 (496). Special Problems. (1-3:0:3-9) F.S. Staff
- 615 (615). Agrostology: Taxonomy and Ecology of Grasses. (2:1:5) F. Pre-requisite: Botany 110; recommended prerequisite: Botany 176. Harrison
- 630 (New). Angiosperm Morphology. (4:3:3) F. (Offered alternate years) Prerequisite: Botany 105 or 331. Moore  
A detailed study of the flowering plants, emphasizing modifications of flower, fruit, and seed.
- 634 (New). Morphogenesis. (3:2:3) F. Recommended prerequisite: training in the following areas: taxonomy, anatomy, and physiology or biochemistry. Moore  
The problem of development of form in organisms, with emphasis on plants.
- 635 (665, 668). Advanced Mycology. (4:2:6) S. Prerequisites: Botany 101 or Zoology 105. and Botany 335. McKnight
- 638 (683). Fleshy Fungi. (2:1:3) Su. Prerequisite: a laboratory course in bacteriology, botany, or zoology. McKnight
- 639 (New). Paleobotany. (3:2:3) S. Prerequisite: Botany 101 or Zoology 105. Staff
- 641 (New). Physiology of Fungi and Algae. (4:3:3) F. (Offered alternate years) Prerequisites: Botany 335, 440 Staff
- 655 (742). Field Ecology. (1-3:Arr.:Arr.) S.Su. (Extended field trip) Pre-requisite: consent of instructor. Murdock
- 676 (625). Cytogenetics. (3:3:0) F. Prerequisite: Botany 525. Stutz
- 678 (650). Speciation. (3:3:0) S. Prerequisite: genetics or consent of instructor. Stutz
- 697, 698 (690, 691, 692). Special Problems. (1-3:0:3-9) F.S. Staff
- 699 (699). Thesis for Master's Degree. (1-6:0:3-12) F.S. Staff
- 740 (706). Advanced Plant Physiology I. (3:2:3) S. Prerequisite: Botany 440. Harrison
- 741 (New). Advanced Plant Physiology II. (3-4:2-3:3) F. Prerequisite: Botany 440. Harrison
- 742 (712). Plant Nutrition and Growth. (3:2:3) F. Prerequisites: Botany 440, Chemistry 111, 112; recommended prerequisite: organic chemistry. Harrison
- 750 (733). Grassland and Desert Ecology. (3:3:0) S. Prerequisite: consent of instructor. Christensen, Murdock
- 752 (735). Forest Ecology. (3:3:0) F. Prerequisite: consent of instructor. Christensen, Murdock
- 760 (754). Conservation of Natural Resources. (1-3:1-3:0-3) F. Prerequisite: consent of instructor. Christensen, Murdock
- 776 (New). Population Genetics. (3:3:0) S. Prerequisite: Botany 176 or Botany 376. Stutz
- 795 (New). Research for Doctoral Degree. (2-4:0:6-12) F.S. Staff
- 799 (New). Doctoral Dissertation. (Arr.) F.S. Staff

## Business Education

Professor: Christensen.

Associate Professors: Crandall, Croft, Peterson.

Assistant Professor: Bell (chairman, 351 JK).

### Graduate Courses

- 570 (670). Cooperative Business Experience Internship. (4:4:4) F.S.Su. Staff



Through cooperation of business and industry, this work-education program is open to the following qualifying majors: office management, executive assistant, and business teacher.

- 590 (690). Seminar. (2:2:0) F.S.Su. Staff
- 630 (630). Current Developments Influencing the Content of Business Education. (2:2:0) F. Staff
- A presentation of recent technological developments, such as automation in business, and an analysis of the content and procedures of business education.
- 635 (635). Recent Changes in the Materials and Methods of Business Education. (2:2:0) S. Staff
- Investigation of recent developments in materials and methods in the teaching of business subjects in the secondary school and junior college. Open to those who have had teaching experience.
- 640 (640). Trends of Thought in Business Education. (2:2:0) S. Staff
- Fundamental ideas that have shaped the business curriculum in the United States and basic issues that have affected purposes, trends, and control of business education in public and private institutions.
- 665 (665). Practicum in Business Education. (2:2:0) F.Su. Staff
- The planning and development of practical and creative projects in the field of business education, individually or in groups. Experienced teachers are permitted to use actual school problems and projects.
- 675, 676 (675). Business Education Workshop. (2:2:0 ea.) Su. Staff
- A series of clinics in selected business subjects.
- 694 (New). Independent Readings. (1-4:1-4:0) F.S.Su. Staff
- 698 (New). Field Project for Master's Degree. (1-4:1-4:0) F.S.Su. Staff
- 699 (New). Thesis for Master's Degree. (1-6:Arr.:Arr.) F.S.Su. Staff

The following courses are applicable in business education and office management:

- Acctg. 255 (315). Basic Concepts of Data Processing. (2:2:1) F.S.Su.
- Acctg. 555 (555). Advanced Data Processing. (3:3:0) S.
- Bus. Mgmt. 420 (420). Human Relations in Adm. I. (3:3:0) F.S.
- Bus. Mgmt. 480, 481 (480, 481). Executive Lectures. (1:1:0) S.

## Business Management

**Professors:** Christensen, Oaks, Smith, Taylor.

**Associate Professors:** McKay (MBA director, 391 JK), Gardner, Johnson, Mangum, Nielson, Pratt (chairman, 395 JK).

**Assistant Professor:** Monsen.

### MASTER OF BUSINESS ADMINISTRATION PROGRAM

Academically, the MBA program is inter-disciplinary in nature, and the MBA faculty is drawn from departments throughout the University.

The MBA program is a full two-year integrated experience which develops professional competence and maturity in the following areas: administration, operations, quantitative analysis, environment, and communication and research. The objective of the program is to qualify students for responsibility and creative leadership in an increasingly complex and dynamic business society. It is anticipated that the student work-load in the program will average 60 to 72 hours per week, and the first-year students are discouraged from taking outside employment. Financial assistance is available to those who qualify. Students may enter the program only in September each year.

#### Admission

Applicants with a bachelor's degree will be considered regardless of their undergraduate major. Those holding degrees in fields other than business are

particularly urged to apply. Admission is based on an evaluation of a completed application, three references, college transcripts, test results, and if practical, personal interviews. Evidence of future administrative capability is considered as well as past performance. The closing date for applications is May 1, except by special petition. Detailed information concerning the admissions procedure may be secured from the MBA Program, Graduate School, Brigham Young University, Provo, Utah.

### Placement

A special placement program is being organized to assist students in beginning and developing their careers.

### Preparation

Students contemplating an MBA degree are advised to take a broad program in their undergraduate work, and to confer with members of the MBA faculty. Students with an undergraduate major in business management will be accepted in the MBA program only by special permission.

### Graduate Courses

- 601 (New). Administration I and II. (6:3:0) F.S. Prerequisite: admission to the MBA program. Covey
- 605 (New). Administration III. (3:3:0) F. Prerequisite: Business Management 601. Covey, McKay
- 607 (New). Administration IV. (3:3:0) S. Prerequisite: Business Management 605. Covey, McKay
- 611 (New). Operations I and II. (12:6:0) F.S. Prerequisite: admission to the MBA program. McKay, Pratt
- 615 (New). Operations III. (3:3:0) F. Prerequisite: Business Management 611. McKay, Pratt
- 617 (New). Operations IV. (3:3:0) S. Prerequisite: Business Management 615. McKay, Pratt
- 621 (New). Quantitative Analysis I and II. (12:6:0) F.S. Prerequisite: admission to the MBA program. Gardner, Nielson, Smith
- 625 (New). Quantitative Analysis III. (3:3:0) F. Prerequisite: Business Management 621. Gardner, Nielson, Smith
- 627 (New). Quantitative Analysis IV. (3:3:0) S. Prerequisite: Business Management 625. Gardner, Nielson, Smith
- 631 (New). Environment I and II. (6:3:0) F.S. Prerequisite: admission to the MBA program. Mangum, Monsen
- 635 (New). Environment III. (3:3:0) F. Prerequisite: Business Management 631. Mangum, Monsen
- 637 (New). Environment IV. (3:3:0) S. Prerequisite: Business Management 635. Taylor
- 641 (New). Communication and Research I and II. (4:Arr.:Arr.) F.S. Prerequisite: admission to the MBA program. Christensen
- 645 (New). Communication and Research III. (3:Arr.:Arr.) Prerequisite: Business Management 641. Christensen
- 647 (New). Communication and Research IV. (3:Arr.:Arr.) Prerequisite: Business Management 645. Christensen

### MASTER OF SCIENCE AND ARTS DEGREES

Applications are no longer accepted for the Master of Science and Master of Arts degrees. Graduate students who are working toward the degree of Master of Science or Arts will continue on with their programs. A minor will still be offered in the fields of business management, finance and banking, marketing, industrial management, and industrial relations and personnel management for



students majoring in other fields providing the student has taken or is willing to take the necessary prerequisites to provide an adequate foundation for his projected graduate minor in this department.

### Graduate Courses

- 521 (521). Human Relations in Administration II.** (3:3:0) S. Prerequisite: Business Management 420 or consent of instructor. Covey  
An illuminating conceptual framework for understanding group processes is developed to identify factors contributing to understanding, growth, and cooperation in group work and leadership.
- 552 (552). Advanced Corporation Finance.** (3:3:0) F.S. Prerequisites: Accounting 211 and Statistics 221 or consent of instructor. Daines  
Financial problems connected with organization of corporations, underwriting, and sale of securities; management, expansion, and organization of corporations that are not successful.
- 555 (555). Problems in Advertising.** (3:3:0) S. Prerequisite: Business Management 455 or consent of instructor. Pratt, Staff  
Problems in the use of advertising as part of management's overall marketing strategy. Stresses planning, coordination, control, and evaluation of effectiveness.
- 556 (556). Problems in Retail Store Management.** (3:3:0) S. Prerequisite: Business Management 456 or consent of instructor. Staff  
Problems involved in policy formulation and implementation and in the coordination of store activities through the use of controls and standards.
- 557 (557). Problems in Sales Management.** (3:3:0) F.S. Prerequisite: Business Management 579 or consent of instructor. Pratt  
Problems in sales methods, sales organization, management of sales force (selection, training, compensation, and supervision), and sales planning and control.
- 558, 559 (558, 559). Advanced Problems in Marketing Research.** (1-3:Arr.:Arr. ea.) F.S. Prerequisites: Business Management 458 and consent of instructor. Oaks  
Advanced methods of research and their application to marketing problems.
- 561 (560, 561). Problems in Production—Manufacturing Processes.** (5:4:2) F. Prerequisites: Business Management 585, Drawing 102, and senior or graduate standing in the department. Other by approval of instructor. Staff  
Part one of a one-year course dealing with problems encountered by production personnel. Considers: (1) the materials and manufacturing processes commonly used in industry; and (2) process analysis as applied to work simplification and plant layout. Utilizes business cases, films, and field trips.
- 562 (561, 562). Problems in Production—Manpower Management and Production Control.** (5:6:0) S. Prerequisite: Business Management 561. Staff  
Part two of a one-year series. Deals with time study, job evaluation, wage administration, manpower planning, and production control.
- 565 (565). Life Insurance.** (2:2:0) S. Prerequisite: Business Management 450 or consent of instructor. Staff  
Advanced study of the nature and functions of life insurance and its application to personal and business needs.
- 566 (566). Property and Casualty Insurance.** (2:2:0) S. Prerequisite: Business Management 450 or consent of instructor. Staff  
Advanced study of the functions of fire and marine insurance, casualty insurance, and corporate building.
- 567 (567). Real Estate Administration.** (2:2:0) S. Prerequisite: Economics 454 or consent of instructor. Staff  
Mechanisms of real estate finance, principles of mortgage risk analysis, role of government agencies, and problems of property development.
- 569 (569). Personnel Management.** (3:3:0) S. Prerequisites: Economics 345 and Business Management 420, or permission of instructor. McKay  
Management of the personnel function: job evaluation, organization plan-

ning, employee selection, training, compensation, morale, labor relations, and management development. Method case analysis and research projects.

- 571 (571). **Management of Financial Institutions.** (3:3:0) S. Daines  
Asset management of various types of financial institutions with special emphasis on loan policies and related problems.
- 573 (573). **Management of Production Facilities.** (2:2:0) S. Prerequisite: Business Management 561. Staff  
Economics of equipment utilization and replacement, capital budgeting, maintenance control, tools, control, systems, and procedure analysis.
- 574 (574). **Investment Management.** (3:3:0) S. Prerequisite: Business Management 451. Covey, Daines  
Theory of investment management and its application in formulation of investment policies for different types of investors.
- 575 (575). **Advanced Production Methods.** (2:2:0) S. Prerequisite: Business Management 561. Staff  
Advanced methods work, automation, and the application of data processing to industrial operations.
- 576 (576). **Industrial Planning and Forecasting.** (2:2:0) S. Prerequisite: Business Management 488. Staff  
Top management policy determination in the areas of production planning, planning of physical facilities, and organization planning as they are related to market and economic forecasts.
- 577 (577). **Modern Corporate Problems.** (2:2:0) F.S. Prerequisite: senior standing in the Department of Business Management or consent of the instructor. Staff  
Problems arising from separation of ownership and control, changing theory of profits and property, changing methods of financing expansion, and other current problems.
- 579 (579). **Problems in Marketing.** (3:3:0) F.S. Prerequisites: Accounting 211 and Statistics 221 or consent of instructor. Oaks, Pratt  
Analysis of problems in marketing management with particular emphasis on integrating the various functional areas.
- 585 (585). **Industry Analysis.** (3:3:0) F.S. Prerequisites: Accounting 211 and Statistics 221 or consent of instructor. Staff  
Production characteristics of major industries. Large business units are studied in terms of sources of raw materials, production techniques, financial structure, degree of integration, stage of maturity, character of mechanization, government regulation, and possible future development.
- 589 (589). **Business Policy.** (3:3:0) F.S. Prerequisites: Business Management 489, and senior standing in the Department of Business Management. McKay, Covey  
Cases involving determination of long range objectives in the business firm; the development of sound and consistent policies for achieving these objectives.
- 591 (591). **Research and Diagnosis of Business Problems.** (1-2:Arr.:Arr.) S. Prerequisite: completion of or concurrent registration in Business Management 589. Staff  
Provides experience in the research and diagnosis phase of case method. Includes preparation of cases from actual business situations.
- 699 (699). **Thesis for Master of Science or Arts Degree.** (1-6:Arr.:Arr.) F.S. Staff

The following courses are applicable in business management:

- Accounting 556. **Electronic Computer Programming.** (3:3:1)  
Journalism 561. **Public Relations.** (3:3:0)  
Statistics 432. **Industrial and Engineering Statistics.** (2:2:0)  
Statistics 532. **Advanced Business Statistics.** (2:2:0)  
B.E.O.M. 320. **Business Writing and Reporting.** (2:2:0)



## Chemistry

**Professors:** Swensen (chairman, 225 ESC), Anderson, Blackham, Broadbent, Bryner, Goates\*, Hall, Nicholes, Vernon.

**Associate Professors:** Butler, Gubler, Izatt, Nelson, Peterson.

**Assistant Professors:** Cluff, Hawkins, Snow.

### Fields

1. Analytical—physical chemistry, 2. Biochemistry, 3. Inorganic chemistry, 4. Organic chemistry, 5. Physical chemistry, 6. Basic chemistry minor.

### Requirements

It is expected that the graduate student will meet all the general requirements for advanced degrees as outlined by the Graduate School. The initiative for meeting these requirements rests with the student. Special requirements of the Department of Chemistry are given below. The objectives of the department in the selection and training of candidates for advanced degrees are first, to assure adequate depth and breadth of knowledge; and second, to discover and develop ability to do independent and productive scientific research. The student's record in undergraduate courses will be accepted as partial evidence of the breadth of his knowledge. He will be expected to extend and broaden this knowledge by taking or auditing advanced courses selected with the approval of his advisory committee.

It is expected that during the first semester of graduate work, the student will choose an advisory committee whose function will be to guide him throughout the course of his graduate study. It is the desire of the department that the student choose the chairman of his committee after individual consultation with at least five members of the Department of Chemistry staff who represent three or more fields of chemistry and who are presently active in research. These faculty consultations are to be recorded on a special form obtained from the department office. After these consultations are completed the student will select his major professor and inform the department chairman of his choice. The department chairman and the student will confer with the professor and ask for his agreement to serve as chairman of the student's advisory committee. The other committeemen will then be chosen by mutual consent of the student and his major professor.

### Master's Degree

In addition to the general Graduate School requirements, a student must successfully complete a departmental entrance examination before he will be accepted as a candidate for the master's degree. Each candidate for the master's degree will be required to pass a reading test or present a year's credit in French, German, or Russian.

### Doctor of Philosophy Degree

Requirements for a Doctor of Philosophy degree in a field of chemistry include satisfactory completion of the following:

1. A written entrance examination to determine if the student has sufficient background to take the basic set of courses required for the doctor's degree.
2. A major consisting of the following general courses required of all students: Chemistry 503, 504, and 601 plus an additional 13 hours minimum chosen from the major area with the help of the student's advisory committee.
3. The following list of basic courses: Chemistry 514, 551, 580, 621, 652, 661, 662. (Students majoring in biochemistry will not be required to take 580.) From the above list, one course in the student's major field and one course in his second minor field will count toward the fulfillment.

of the major and second minor requirements respectively. The remaining courses in this list will constitute a first minor in basic chemistry.

4. A second minor consisting of a minimum of 10 semester hours of courses in not more than two supporting areas.
5. A comprehensive examination in the major and minor fields. This may include a general oral examination at the option of the student's advisory committee. It may not be taken before the end of the first year of full-time study, but must be taken at least one year prior to the granting of the degree. The student is not a candidate for the Ph.D. degree in chemistry until he has passed these examinations.
6. Admission to candidacy after (1) completing two years of graduate study, (2) passing language examination, (3) passing comprehensive examinations, and (4) obtaining approval of subject for dissertation.
7. An oral examination in which one to three propositions (as recommended by his committee) is presented by the student. The examination may not be held earlier than the comprehensive examination but is held no later than three months after its completion.
8. A dissertation prepared under the direction of the candidate's advisory committee in which he reports and interprets the results of his research.
9. A final oral examination devoted primarily to the dissertation.

#### Graduate Courses

- |          |  |                                      |
|----------|--|--------------------------------------|
| 500      | (508). *History of Chemistry. (2:2:0) S. (Offered 1962-63)   | Nicholes                             |
| 503      | (503). Research Laboratory Techniques. (1:0:3) F.  | Staff                                |
| 504      | (504). Instrumental Analysis. (2:1:3) F.S. Prerequisites: Chemistry 461, 464.  | Butler, Goates                       |
| 514      | (414, 611). Inorganic Chemistry. (3:3:0) S. Prerequisites: Chemistry 221 or 321 and Chemistry 351.   | Cluff, Izatt, Peterson               |
| 518      | (618). *Inorganic Syntheses. (2:0:6) (Offered 1961-62)   | Cluff, Izatt, Peterson               |
| 524      | (524). *Quantitative Microanalysis. (2:1:3) S. (Offered 1962-63)   | Staff                                |
| 551      | (551). Qualitative Organic Analysis. (2-3:1:3-6) F.<br>Systematic identification of organic compounds singly and in mixtures.  | Blackham, Broadbent, Hawkins, Nelson |
| 580      | (580). Metabolic Processes. (2:2:0) S. Prerequisites: Chemistry 352 and 461.<br>For non-biochemistry majors only. Provides an insight into the important area of biochemistry for those who will not otherwise contact it. | Gubler, Swensen                      |
| 581, 582 | (581, 582, 583). Biochemistry. (3:3:0) F.S. Prerequisites: Chemistry 321 or 221, Chemistry 352 and 355.  | Gubler, Swensen, Vernon              |
| 584, 585 | (581, 582). Biochemistry Laboratory. (2:0:6) F.S. Prerequisites: completion of or concurrent registration in Chemistry 581 and 582.  | Gubler, Swensen, Vernon              |
| 591, 592 | (591, 592, 593). Chemical Literature and Technical Writing. (1:1:0) F.S.   | Broadbent, Nelson                    |
| 598      | (597). Special Problems. (Arr.) Registration by permission.  | Staff                                |
| 601      | (601). Geometry of Atoms and Molecules. (3:3:0) F.<br>Blackham, Broadbent, Hawkins, Nelson   |                                      |
| 612      | (612). *Chemistry of the Non-Metals. (2:2:0) F. (Offered 1962-63)  | Cluff, Izatt                         |
| 613      | (613). *Chemistry of the Metals. (2:2:0) F. (Offered 1960-61)  | Cluff, Izatt                         |
| 621      | (621). Advanced Analytical Chemistry. (2:2:0) S.   | Butler                               |
| 652      | (652). Advanced Organic Chemistry. (3:3:0) S.<br>Blackham, Broadbent, Hawkins, Nelson  |                                      |
| 658      | (658). Organic Syntheses. (3:1:6) F.<br>Blackham, Broadbent, Hawkins, Nelson   |                                      |



- 661 (661). Chemical Thermodynamics. (3:3:0) F. Goates, Snow  
 662 (662). Chemical Thermodynamics. (2:2:0) S. Goates, Snow  
 663 (663). Reaction Kinetics. (2:2:0) S. Goates, Snow  
 681, 682 (682). \*Biochemistry of Amino Acids and Proteins. (3:3:0 ea.) F. Gubler, Swensen, Vernon  
 (Offered 1962-63)  
 688 (688). Biochemical Preparations. (2:0:6) F.S. Gubler, Swensen, Vernon  
 697 (697). Master's Candidate Research. (Arr.) Arr. Staff  
 699 (699). Thesis for Master's Degree. (Arr.) Arr. Staff  
 711 (711). \*Coordination Compounds. (2:2:0) F. (Offered 1962-63) Izatt  
 719 (719). Selected Topics in Inorganic Chemistry. (1-3:1-3:0) Arr. Staff  
 725 (725, 726). \*Electro-analytical Chemistry. (3:3:0) F. (Offered 1962-63) Butler  
 729 (729). Selected Topics in Analytical Chemistry. (1-3:1-3:0) Arr. Staff  
 751 (751). Mechanisms of Organic Reactions. (3:3:0) F. Blackham, Broadbent, Hawkins, Nelson  
 757 (757). \*Chemistry of Natural Products. (2:2:0) S. (Offered 1962-63) Broadbent, Vernon  
 758 (758). \*Heterocyclic Compounds. (2:2:0) S. (Offered 1961-62) Broadbent  
 759 (759). Selected Topics in Organic Chemistry. (1-3:1-3:0) Arr. Staff  
 761, 762 (761, 762, 763). \*Statistical Mechanics. (3:3:0 ea.) F.S. (Offered 1962-63) Snow  
 764 (764). \*Nuclear and Radiochemistry. (3:2:2) S. (Offered 1962-63) Anderson  
 765, 766 (765, 766, 767). \*Quantum Chemistry. (3:3:0) F.S. (Offered 1961-62) Snow  
 769 (769). Selected Topics in Physical Chemistry. (1-3:1-3:0) Arr. Staff  
 781 (781). \*Enzyme Chemistry. (2-3:2:0-3) F. (Offered 1962-63) Swensen, Vernon  
 782 (782). \*Biological Oxidation. (2:2:0) S. (Offered 1962-63) Vernon  
 797 (797). Doctoral Candidate Research. (Arr.) Arr. Staff  
 799 (799). Dissertation for the Ph.D. Degree. (Arr.) Arr. Staff  
 \*Offered alternate years only.

## Civil Engineering Science

**Professors:** Rollins (chairman, 198 ELB), Firmage, Fuhriman, Hodson.

**Associate Professor:** Barton.

The Department of Civil Engineering Science offers the master's degree in the areas of structures, hydraulics, engineering mechanics, soil mechanics, and materials.

A student working toward a graduate degree in civil engineering should have completed a bachelor's degree or its equivalent in civil engineering. Students without such training are required to complete basic civil engineering courses before proceeding with a graduate program.

All students working toward a graduate degree in civil engineering are expected to complete a minimum of 6 semester hours of approved mathematics credit beyond a course in ordinary differential equations. Such courses must be a part of the master's degree program if they were not completed in the undergraduate program.

In addition to the general Graduate School requirements, a student may be required to successfully complete a departmental entrance examination before he is accepted as a candidate for the master's degree.

## Graduate Courses

- 501 (New). Advanced Mechanics of Materials I. (3:3:0) Arr. Barton**  
Introduction to theories of elasticity, plasticity, and strain energy methods; stresses and strains in beams, curved members, rotating discs, thick cylinders, and torsion and structural members.
- 503 (504). Applied Elasticity. (3:3:0) Arr. Barton**  
Analysis of stress and strain in two dimensions; equation of equilibrium and compatibility; problems in elasticity; emphasis on applications to machine and structural design.
- 507 (New). Experimental Stress Analysis I. (3:2:3) Arr. Barton**  
Principles and techniques of the experimental methods of stress determination and their application to static engineering problems; includes mechanical and optical gages, and brittle lacquers; emphasizes electric strain gages, calibration and instrumentation; introduces photoelasticity and photostress techniques.
- 526 (526). Advanced Structural Theory. (3:2:3) Arr. Firmage**  
Continued analytical methods in structural mechanics and iterative processes. Solutions of complex structural types; arches; secondary stress.
- 531 (New). Advanced Hydraulic Design. (3:2:3) Arr. Prerequisites: C.E. 424, 431, and 432. Fuhriman**  
Planning and basic design of hydro-electric, flood control, irrigation, and multi-purpose projects involving the utilization of water resources; consideration of hydraulic and hydrologic design elements.
- 543 (New). Physico-Chemical Characteristics of Soils. (3:3:0) Arr. Prerequisites: Chemistry 106, Physics 212, C.E. 441. Rollins**  
Physico-chemical relationships in soils, including the structures of clay minerals, properties of the electrical double layer, ion exchange phenomena, and equilibria.
- 601 (New). Advanced Properties of Materials. (3:3:0) Arr. Prerequisite: C.E. 401 or equivalent. Barton**  
Structure of metals and behavior of materials under various conditions of loading and use; relation of mechanical properties to behavior and their significance; tests and interpretation of test data.
- 603 (New). Theory of Elasticity. (3:3:0) Arr. Prerequisites: Math 315 and 316 or equivalent. Barton**  
The mathematical theory of elasticity; analysis of stress and strain; generalized Hooke's law; uniqueness theorem, special topics in elasticity.
- 621 (New). Thin Shell Structures. (3:3:0) Arr. Firmage**  
Theory and design methods related to domes, arches, folded plate, and hypar structures.
- 622 (New). Bridge Design. (3:3:0) Arr. Firmage**  
Design of statically indeterminate bridge structures including composite continuous beams and continuous trusses. Design of piers and abutments. AASHTO bridge design specifications.
- 623 (New). Pre-Stressed Concrete. (3:3:0) Arr. Firmage**  
Basic theory, prestress and post-stress methods. Details of design and fabrication. Applications to continuous structures.
- 625 (New). Structural Design of Multi-Story Buildings. (3:3:0) Arr. Firmage**  
Design loadings and specifications, analysis and design of statically indeterminate structural frames of steel and concrete. Elastic and plastic approaches to design.
- 632 (New). Advanced Hydrology. (3:3:0) Arr. Prerequisites: C.E. 431, 432 or equivalent. Fuhriman**  
Theory and application of advanced hydrologic principles to engineering design and investigations.
- 633 (New). Hydraulic Design of Water Control Structures. (3:3:0) Arr. Fuhriman**  
Hydraulic and structural design of concrete dams and appurtenants works operational procedures.



- 641 (New). **Advanced Soil Mechanics.** (3:3:0) Arr. Prerequisites: C.E. 441, 542 or equivalent. Rollins  
Advanced topics in soil mechanics including stress distribution in earth masses, the shearing strength of soils, consolidation theory, settlement analysis, stability of slopes, and the bearing capacity of soils.
- 642 (New). **Advanced Soil Mechanics Laboratory.** (2:0:6) Arr. Prerequisites: C.E. 441, 542 or equivalent. Rollins  
An advanced study in the techniques of laboratory investigations of soils.
- 644 (New). **Advanced Foundation Engineering.** (3:3:0) Arr. Rollins  
An applied course in foundation engineering including techniques of sub-surface investigation, determination of the allowable soil pressures for footings, and the design of spread footings, raft foundation, and pile foundation for structures on clays, silts, and sand.
- 690 (New). **Civil Engineering Seminar.** (Arr.) S. Staff
- 694 (New). **Selected Problems in Civil Engineering.** (Arr.:Arr.:0) F.S. Staff
- 697 (New). **Research in Civil Engineering.** (Arr.) F.S. Staff
- 699 (New). **Thesis for Master's Degree.** (Arr.:Arr.:0) F.S. Staff

## Dramatic Arts

### Dramatic Arts

**Professor:** Hansen (chairman, Steadman House).

**Associate Professors:** Gledhill, Woodbury.

### Speech

**Professors:** de Jong, Mitchell, Morley.

**Associate Professors:** Bateman, Mecham.

**Assistant Professor:** Clinger, (chairman, Steadman House).

## DEPARTMENT OF DRAMATIC ARTS

### Fields

Dramatic arts and theatre, interpretation, and radio and television.

### Requirements

For full graduate standing as a major in dramatic arts and theatre, interpretation, or radio and television, the student must present as background: Dramatic Arts 121, 123, 241, Speech 101, or their equivalents, plus 12 hours of electives approved by the chairman of the department. Academic programs are available leading to the M.A. and M.S. degrees.

During the first semester of graduate study, candidates for the master's degree must pass a written test to demonstrate proficiency in background in the area in which they elect to major.

It is expected that graduate students will acquaint themselves with all the general regulations for advanced degrees as outlined by the Graduate School.

Following are divisions of courses in dramatic arts:

**Dramatic arts and theatre:** 571, 572, 573, 577, 578, 643, 664, 665, 667, 668, 670, 671, 672, 673, 674, 675, 676, 678, 697, 699.

**Interpretation:** 423, 643, 660, 661, 662, 663, 667, 696, 699.

**Speech:** 527.

**Radio and television:** 577, 578, 603, 605, 643, 670, 672, 673, 678, 690, 691, 699.

### Graduate Courses

- 555 (New). **Theatre Workshop.** (2-4:2-4:2) Su. only. Hansen  
May be repeated.

- 572, 573 (572, 573). **Children's Theatre.** (2:2:1) Arr. Mitchell  
Directing for audiences of children and youth. Participation in Youtheatre productions. Attendance at Monday night Mask Club required.
- 577, 578 (577, 578, 579). **Playwriting.** (1-3:1-3:0) Arr. Hansen, Mitchell  
Advanced techniques and theories. May be repeated.
- 603 (603). **Radio and Television Projects.** (1-4:1-4:0) Arr. Staff
- 605 (605). **History of Radio and Television Programming.** (2:2:0) S. Staff
- 643 (643). **Methods and Problems of Research in Dramatic Arts and Speech.** (2:2:0) F. Required of all graduate students. Should be taken as early as possible. Mecham.
- 660 (660). **Theory of Interpretation.** (2:2:0) F. Gledhill
- 661 (661). **Oral Interpretation of Classic Literature.** (2:2:0) S. Gledhill
- 662 (662). **Regional Dialects.** (2:2:0) Arr. Clinger
- 663 (663). **Program Building and Lecture Recital.** (2:2:0) F. Gledhill
- 664 (664, 665). **History of Theatre I.** (3:3:0) F. Hansen  
Primitive and Egyptian periods through the Elizabethan period.
- 665 (665, 666). **History of Theatre II.** (3:3:0) S. Hansen  
Restoration period to the middle of the Twentieth Century.
- 667 (667). **History of Acting.** (2:2:0) S. Woodbury  
Styles and theories from Classical to Method.
- 668 (668). **Special Problems in Theatre History.** (1-3:1-3:0) F.S. Staff  
Oriental theatre and the Free theatres of Europe.
- 670 (New). **Advanced Play Production—Technical.** (2:2:0) S. Staff  
A formal study of the "isms" from the point of view of stage design.
- 671 (671). **Experimental Theatre.** (2:2:0) F. Hansen
- 672 (672). **Problems of the Producing Director.** (2:2:0) F. Hansen
- 673 (673). **Advanced Play Production—Directing.** (2:2:0) S. Hansen
- 674 (674). **Projects in Theatre.** (1-4:1-4:0) F.S. Staff
- 675 (675, 676). **Stage Design.** (2:2:1) F. Staff  
May be repeated.
- 676 (676, 677). **Stage Design.** (2:2:1) S. Staff  
May be repeated.
- 678 (678). **Stage Lighting.** (1-2:1-2:0) Arr. Staff
- 690 (690). **Seminar in Mass Communications.** (1-3:1-3:0) F.S. Staff
- 691 (691). **Selected Readings in Radio and Television.** (1-3:1-3:0) F.S. Staff
- 696 (696). **Seminar in Interpretation.** (1-3:1-3:0) F.S. Gledhill, Woodbury
- 697 (697). **Seminar in Arena Theatre.** (1-4:1-4:0) F.S. Hansen
- 699 (699). **Thesis for Master's Degree.** (Arr.) F.S.Su. Staff

## DEPARTMENT OF SPEECH

### Fields

Public speaking and speech pathology.

### Requirements

For full graduate standing as a major in public speaking or speech pathology, the student must present as background: Dramatic Arts 121, 123, 241; Speech 101, or their equivalents, plus 12 hours of electives approved by the chairman of the department academic programs are available leading to the M.A. and M.S. degrees.

During the first semester of graduate study, candidates for the master's degree must pass a written test to demonstrate proficiency in backgrounds in the area in which they elect to major.

It is expected that graduate students will acquaint themselves with all the general regulations for advanced degrees as outlined by the Graduate School.



Following are divisions of courses in speech:

**Public speaking:** 524, 525, 527, 621, 622, 623, 624, 643, 692, and 699. 401 and 402 may be counted in this field in harmony with general regulations of the Graduate School.

**Speech pathology:** 541, 542, 545, 546, 547, 560, 561, 640, 641, 643, 645, 646, 647, 648, 656, 693, 695, 699.

### Graduate Courses

- 524 (524). High School Forensics and Programming. (1-2:1-2:1-6) S. Bateman
- 525 (525). Debate Coaching. (1-2:1-2:0) F.S. Bateman  
Designed for prospective debate coaches. Covers debate techniques and how they are taught.
- 527 (527). Storytelling. (2:2:0) S. Staff  
Art of storytelling. Especially valuable to teachers and youth leaders.
- 541 (541). Stuttering. (1:1:0) F. Morley
- 542 (542). Organic Speech Disorders. (2:2:0) S. Mecham
- 545 (545). Public School Audiometry. (2:2:2) F.S. Prerequisite: Speech 473. Staff
- 547 (547). Psychology of Speech. (2:2:0) S. Prerequisite: Psychology 111. Morley
- 560 (560). Clinical Audiology. (2:2:2) F.S. Prerequisite: Speech 473. Staff
- 561 (New). Hearing Aids. (1:1:0) S. Staff
- 621 (621). Ancient Rhetoric and Oratory. (2:2:0) F. Bateman
- 622 (622). History of British Public Speaking. (2:2:0) S. Bateman
- 623 (623). History of American Oratory and Public Address. (2:2:0) F. Bateman
- 624 (News). Contemporary Public Address. (2:2:0) S. Bateman
- 640 (640, 641). Graduate Clinical Practice Speech and Hearing. (1-2:1-2:0) Staff
- 641 (641, 642). Graduate Clinical Practice Speech and Hearing. (1-2:1-2:0) Staff
- 643 (643). Methods and Problems of Research in Speech and Dramatic Arts. (2:2:0) F. Staff  
Required of all graduate students.
- 645 (645). Advanced Studies in Stuttering. (2:2:0) S. Morley
- 646 (646). Advanced Studies in Cleft Palate. (2:2:0) F. Mecham
- 647 (647). Advanced Studies in Cerebral Palsy. (2:2:0) F. Mecham
- 648 (648). Advanced Studies in Aphasia. (2:2:0) S. Gledhill, Woodbury
- 656 (656). Special Problems in Speech Pathology. (1-4:1-4:0) F.S. Staff
- 692 (692). Seminar in Public Speaking. (1-3:1-3:0) F.S. Bateman
- 693 (693). Special Studies in Speech Pathology. (1-3:1-3:0) F.S. Staff
- 695 (695). Seminar in Psychoacoustics of Speech and Hearing. (1-3:1-3:0) F. Staff
- 699 (699). Thesis for Master's Degree. (1-6:Arr.:Arr.) F.S. Staff

### Economics

**Professors:** Clark, Nelson\*.

**Associate Professors:** Gardner, Mangum.

**Assistant Professors:** Doxey (chairman, 308 JK), Davies, Monsen.

For full graduate standing, a student in economics must have completed Economics 111, 112, 345, and Statistics 221 or their equivalents. However, a

student may be admitted on a provisional basis upon completion of Economics 111 and 112, provided he registers in Economics 345 and Statistics 221 his first semester of graduate work.

There are two basic programs in economics:

1. General economics—the student in this program may select 15 hours of work under the guidance of his committee. This program must include Economics 586, 587, and 594. In the event the student has had Economics 274 in his undergraduate work, course 594 may be waived.
2. Junior college teaching of economics—those preparing to teach economics in the junior colleges should acquire either a junior college or a secondary teaching certificate. The junior college certificate requires the completion of Instruction 682, 684, and 685. These courses may be applied toward the 5 hours of graduate work outside the major and minor requirements. The major work, consisting of 15 hours, should be selected to add breadth of understanding of economic principles and institutions and must include Economics 594, and either Economics 486 or the 586-587 sequence. Depending upon the graduate's background and interest, the minor will usually be selected from one of the following fields: accounting, business management, geography, history, political science, psychology, or statistics.

Students in both programs must complete an acceptable thesis in addition to the 15 hours of graduate classwork in economics. They must also complete English 99 before beginning the writing of the thesis.

#### Graduate Courses

510	(510). Utah Workshop on Economic Education. (3:Arr.:Arr.) Su. (Continuous for three weeks.)	
558	(558). International Trade and Finance. (3:3:0) S.	Doxey
575	(575). Government Finance. (3:3:0) F.	Mangum
576	(576). Government and Business. (3:3:0) S.	Mangum
580	(580). History of Economic Thought. (3:3:0) F.	Davies
586	(586). Theory of Price. (3:3:0) F.	Gardner
587	(587). Theory of Income, Employment, and the Price Level. (3:3:0) S.	Gardner
594	(574). Seminar in Economic History. (2:2:0) F.	Doxey
681	(681). Contemporary Economic Thought. (2:2:0) S.	Gardner
682	(682). Business and Economic Fluctuations. (2:2:0) F.	Nelson
692	(594). Seminar in Monetary and Fiscal Policy. (2:2:0) F. Prerequisite: Economics 345.	Staff
693	(683). Seminar in Comparative Economic Systems. (2:2:0) S.	Nelson
694	(593). Seminar in Labor Problems and Labor Relations. (2:2:0) S. Prerequisite: Economics 461.	Davies, Mangum
696, 697	(696, 697). Research. (Arr.) F.S.Su.	Staff
699	(699). Thesis for Master's Degree. (Arr.)	Staff

The following courses are applicable in economics:

Geography 522. Urban Geography. (2:2:0)  
 Agricultural Economics 525. Production Economics. (2:2:0)  
 Geography 533. Industrial Geography. (3:3:0)  
 Agricultural Economics 580. Agricultural Policy. (2:2:0)



## Educational Administration

**Professors:** Oakes (chairman, 126 McKay), Burrup, Moffitt, Morrill, Nuttall, Woolf.

**Associate Professor:** Barnett.

**Assistant Professors:** Harms, Ovard.

### Requirements

The department offers graduate courses for the preparation, certification, and professional development of school administrative and supervisory personnel. Academic work is available for those preparing for professional service in the areas of general administration—including school superintendency, director of educational research, administrative assistants, and others), the school principalship (elementary and secondary), school business management, general supervision (supervisor, director of instruction, curriculum director, and others), and administration of higher education.

Admission to the department with full graduate status is contingent upon the following:

1. Completion of 22 semester hours of education or a valid teaching credential.
2. Compliance with admission requirements of the Graduate School.
3. Evidence of the student's ability to do satisfactory graduate work (to be determined by the faculty of the department).

### Master's Degree

The department offers the Master of Arts, the Master of Science, and the Master of Education degrees. Requirements for each degree are outlined elsewhere in this catalog.

It should be noted that a candidate must complete no less than one year as a teacher before completing the field project.

**Majors:** Recognizing the need for providing a broad professional background for administrative-supervisory leadership in education, the department has the following policies regarding courses:

1. Persons preparing for elementary and secondary school principalships and school supervisors can pursue majors in the department culminating in the master's degree.
2. Persons preparing for school superintendencies and district level administration should elect the two-year certificate—specialist in educational administration, or the doctorate in educational administration. Should a student want a master's degree as part of his preparation he should register for and complete a thesis or field project at the appropriate time during his training.
3. All students must complete a core of courses covering general administration, supervision, and research. These include:  
 Ed. Adm. 600. Org. and Adm. of Public Schools.  
 Ed. Adm. 610. Public School Finance.  
 Ed. Adm. 665. Supervision of Education.  
 E.R.S. 641. Ed. Research and Thesis Writing. (Does not count for hours toward major.)
4. Those interested in elementary principalship should take, in addition to the above listed courses, Ed. Adm. 631 and 738. Minors should be selected from the Departments of Instruction, Educational Research and Services, Educational Philosophy and Programs, or other departments approved by their advisers.
5. Those interested in secondary principalship should take, in addition to the above courses, Ed. Adm. 644 and 738. Minors should be selected from the Departments of Instruction, Educational Research and Services, Edu-

cational Philosophy and Programs, or other departments approved by their advisers.

6. Those interested in supervisory positions, other than principalship, should take in addition to the courses listed in item 3 above, Ed. Adm. 631, 644 or 738. The minor should be in the Department of Instruction. Electives should be selected from the subject matter areas of instruction.

**Minors:** Those minoring in the department should take Ed. Adm. 600, 610, 665, and three additional hours in courses to be selected by the student and his adviser from offerings in the department.

### **Two-Year Certificate—Specialist in Educational Administration**

The department offers a two-year program planned for the preparation of school superintendents, assistant superintendents, secondary school principals, and elementary school principals. Sixty semester hours of acceptable graduate work beyond the baccalaureate degree is required. Obtaining a master's degree is encouraged but not required.

To be admitted into the program in full standing, the candidate must: (1) present evidence of at least two years successful professional experience; (2) achieve satisfactory scores on (a) the Ohio State Psychological Examination and (b) the Cooperative General Culture Test; and (3) present evidence of a satisfactory academic background in the area of his intended field of preparation.

The planned program includes the following:

1. **Education Courses Required in Two-Year and Doctoral Programs in All Departments.** (10 hours)

Ed. Adm. 600; Ed. Phil., 604; Inst. 631 or 656.

2. **Courses Required in Educational Administration.** (9-12 hours)

Ed. Adm. 610, 665, 673; E.R.S. 540.

Ed. Adm. 680 is required also of all who have had no school administration experience.

3. **Courses Required in Cognate Areas.** (8 hours)

A minimum of 8 semester hours in courses approved by the advisory committee is required in one or more of the following fields: economics, political science, psychology, sociology, or business administration.

The following courses are specifically required: Soc. 449; Pol. Sci. 535.

4. **Required Education Courses in Special Areas of Educational Administration.**

**Elementary School Principals** (8 hours)

Ed. Adm. 631, 710; E.R.S. 601; Inst. 646. In addition, the candidate is expected to take any of the following courses in which he has not had acceptable undergraduate preparation: Inst. 623. Science in the Elementary Schools; Inst. 635. Social Studies in the Elementary Schools; Inst. 641. Language Arts in the Elementary Schools; Inst. 642. Reading in the Elementary Schools; Inst. 644. Arithmetic in the Elementary Schools.

**Secondary School Principals** (10 hours)

Ed. Adm. 644, 712, 723; E.R.S. 550; Inst. 676.

**Superintendents** (9 hours)

Ed. Adm. 631, 644, 690, 775.

5. **Restricted Electives**

The indicated minimum semester hours must be selected from the following courses:

**Elementary School Principals** (10 hours)

Ed. Adm. 619, 690, 712, 738; Ed. Phil. 642; E.R.S. 560, 606, 610; Soc. 512.

**Secondary School Principals** (10 hours)

Ed. Adm. 619, 651, 654, 690, 730, 738; Ed. Phil. 642; E.R.S. 606, 610, 653; Inst. 667; Soc. 512.



**Superintendents (14 hours)**

Ed. Adm. 619, 651, 654, 730, 737, 738, 741, 748, 749, 750, 786; Ed. Phil. 642, 662; E.R.S. 653; Inst. 646 or 676, 667; Soc. 512.

Students desiring to prepare themselves as **assistant superintendents** normally will elect to take from the above courses: Ed. Adm. 619, 737, 738, 750.

Students desiring to prepare themselves as **assistant superintendents management** normally will elect to take from the above courses: Ed. Adm. 651, 730, 750, 786.

Students desiring to prepare themselves as **assistant superintendents for instruction** will normally elect to take from the above courses: Ed. Adm. 737, 738; Ed. Phil. 662; Inst. 646 or 676.

Students desiring to prepare themselves as **assistant superintendents for teacher personnel** will normally elect to take from the above courses: Ed. Adm. 619, 738, 749.

Students desiring to prepare themselves as **assistant superintendents for pupil personnel** will normally elect to take from the above courses: Ed. Adm. 654; E.R.S. 653; Inst. 667.

6. **Free Electives:** The remaining hours of credit to be taken may be chosen from either education or cognate area courses as determined by the student and his adviser.
7. **Comprehensive Examination:** A comprehensive examination is administered near the end of the student's last semester of work. A satisfactory score must be achieved in order to be recommended for the specialist in educational administration certificate.
8. **Residence:** A student must establish residence by spending at least one full semester on campus during the regular school year.
9. **Transfer of Credit:** Ten semester hours credit may be transferred from B.Y.U. off-campus centers. Students from other accredited institutions may transfer 30 credit hours.

**Doctor of Education Degree**

The department offers work leading to a Doctor of Education degree in educational administration with areas of special emphasis in:

1. General school administration
  - a. Superintendent
  - b. Assistant superintendent for curriculum
  - c. Assistant superintendent for personnel
  - d. Assistant superintendent for pupil personnel
2. School business management
3. Secondary school administration
4. Elementary school administration
5. Administration of higher education
6. Administration of L.D.S. Church education programs

**Admission:** To receive full admission into the program, students are tested for familiarity with certain fields of significance to education. Satisfactory scores must be obtained in the following tests: (1) scholastic aptitude, (2) vocational interest, (3) personality, (4) effectiveness of expression, and (5) general educational background.

In addition, students must submit evidence of at least two years of successful professional experience and an adequate background in their intended areas of specialization.

**Course Work:** A minimum of seventy-five semester hours of acceptable graduate credit beyond the baccalaureate degree is required to complete the programs in educational administration.

All students must complete 10 hours in the courses required of all graduate students in education: Ed. Adm. 600; Ed. Phil. 604; E.R.S. 641; Inst. 631, 656 or



682, and six hours in the following courses: Ed. Adm. 610, 665, 673. Students who have had no administrative experience also are required to take Ed. Adm. 680.

A minimum of 12 hours in areas cognate to education is required of all students. The following fields are acceptable: economics, political science, psychology, and sociology. Specifically required are Soc. 449, 470, and Pol. Sci. 535.

Students planning to specialize in **elementary school administration** are required to take 19 hours consisting of the following courses: Ed. Adm. 631, 690, 691, 710, 775; Ed. Phil. 621; E.R.S. 601; Inst. 646. In addition, students are expected to take any of the following courses for which there is no evidence of acceptable undergraduate preparation: Inst. 623, 635, 641, 642, 644. Students are also expected to take a minimum of 12 hours from a group of restricted electives as follows: Ed. Adm. 619, 712, 737 738; Ed. Phil. 642; E.R.S. 560, 606, 610; Soc. 512. To complete the balance of the course work requirements, students are allowed a minimum of 13 to 16 hours of free electives chosen from either education or cognate areas as determined by the student and his chairman.

Students planning to specialize in **secondary school administration** are required to take 21 hours consisting of the following courses: Ed. Adm. 644, 690, 691, 712, 723, 775; Ed. Phil. 621; E.R.S. 550; Inst. 676. In addition, students are expected to take 12 hours from a group of restricted electives as follows: Ed. Adm. 619, 651, 654, 730, 738; Ed. Phil. 642; E.R.S. 606, 610, 653; Inst. 662, 667, 670, 672; Soc. 512. To complete the balance of course work requirements, students are allowed a minimum of 11 to 14 hours of free electives chosen from either education or cognate areas as determined by the student and his chairman.

Students planning to specialize in the areas of **general school administration** are required to take 17 hours consisting of the following courses: Ed. Adm. 631, 644, 690, 691, 750, 775; Ed. Phil. 621. In addition, students are expected to take 14 hours from a group of restricted electives as follows: Ed. Adm. 619, 651, 654, 710, 730, 737, 738, 741, 748, 749, 786; Ed. Phil. 642; E.R.S. 653; Inst. 646 or 676; Soc. 512. From the foregoing restricted elective courses students preparing for **school superintendencies** normally will elect Ed. Adm. 619, 737, 738, 786. Students preparing for the area of **school business management** normally will elect Ed. Adm. 651, 730, 737, 786. Students preparing themselves for the position of **assistant superintendent for instruction** will normally elect Ed. Adm. 737, 738; Ed. Phil. 662; Inst. 646 or 676. Students preparing themselves for the position of **assistant superintendent for teacher personnel or personnel director** normally will elect Ed. Adm. 619, 738, 749. Students preparing themselves for the position of **assistant superintendent for pupil personnel** normally will elect Ed. Adm. 654, 738; E.R.S. 611, 653. Students planning to specialize in the area of administration of **higher education** are required to take Ed. Adm. 748, 749; E.R.S. 656; Inst. 682 (the latter two courses are to be used in lieu of any two courses in the restricted elective list). To complete the balance of course work requirements, students are allowed a minimum of 13 to 16 hours of free electives chosen from either education or cognate areas as determined by the student and his chairman.

Students preparing for the doctorate in educational administration with an emphasis in L.D.S. religious education are required to complete the 10 hours of course work required of all doctoral students in education and the 6 hours of course work required of all doctoral students in educational administration. Students must complete the 30 hour core in the College of Religious Instruction consisting of Bible 411, 501, 502, 503, 511, 512; Church History 441, 442; Modern Scripture 527, 621, 624; Religious Education 530, 670. Additional required courses in education consisting of 21 hours are: Ed. Adm. 619, 644 or 748, 690, 691, 738, 775; Ed. Phil. 621; Inst. 676 or 684. The balance of course work may be selected as determined by the student and his advisory committee. Special consideration should be given to course work in the area of counseling.

**Examinations:** A comprehensive examination is administered to all doctoral students after approximately 60 semester hours have been completed. A final written examination is administered to all doctoral students at the completion of their course work. The final oral examination is administered at the conclusion of the field project.



**Field Project and Report:** A research project for the improvement of a program of administration or instruction must be carried out under the direction of the student's advisory committee, after he has passed the final written examination. The report of the field study must meet the same standards of format as the Doctor of Philosophy dissertation and must be submitted under the same schedule and the publication requirements.

### Graduate Courses

600	(600, 700). Organization and Administration of Public Schools. (3:3:0) F.S.Su.	Moffitt, Morrill, Oakes
610	(610). Public School Finance. (2:2:0) F.S.Su.	Barnett, Burrup, Nuttall
619	(619). Personnel Problems of the School Staff. (2:2:0) F.S.Su.	Barnett, Harms
631	(631). The Elementary School Principalship. (2:2:0) F.S.Su.	Barnett, Harms, Morrill
644	(644). Work of the Secondary School Principal. (2:2:0) F.S.Su.	Burrup, Ovard, Woolf
651	(651). Administration of Auxiliary Services. (2:2:0) F.Su.	Barnett
654	(654). Administration of Pupil Personnel. (2:2:0) S.Su.	Burrup, Ovard
665	(665). Supervision of Education. (2:2:0) F.S.Su.	Harms, Moffitt, Woolf
673	(673). School Law. (2:2:0) F.S.Su.	Barnett, Burrup, Oakes
680	(New). Field Work in Educational Administration. (3:1:4) F.S.Su.	Harms, Nuttall
690, 691	(690, 691). Seminar. (2:2:0) F.S.Su.	Staff
693, 694	(693, 694). Independent Readings. (1-2:3-6:0) F.S.Su.	Staff
696, 697	(696, 697). Independent Research. (1-2:3-6:0) F.S.Su.	Staff
698	(698). Field Project. (2-4:Arr.:Arr.) F.S.Su.	Staff
699	(699). Thesis for Master's Degree. (2-6:Arr.:Arr.) F.S.Su.	Staff
710	(New). Problems of Elementary School Administration. (2:3:0) S.Su.	Harms
712	(712). The Junior High School. (2:2:0) S.Su.	Ovard, Woolf
723	(723). The Senior High School. (2:2:0) F.Su.	Ovard, Woolf
730	(730). Business Administration of the Public Schools. (2:2:0) S.Su.	Burrup
737	(737). Research and Survey Procedures in Educational Administration. (2:2:0) S.Su.	Morrill, Oakes
738	(626, 738). Leadership Functions in Educational Administration. (3:3:0) F.S.Su.	Moffitt, Morrill
741	(New). Organization and Administration of Continuing Education. (3:3:0) S.Su.	Ovard
748	(748). College and University Organization and Administration. (2:2:0) F.Su.	Oakes, Woolf
749	(749). Evaluation and Accreditation of Educational Institutions. (2:2:0) F.Su.	Oakes
750	(750). Public School Building Programs. (2:2:0) S.Su.	Morrill, Ovard
775	(New). Educational Administrative Theory. (3:3:0) F.S.Su.	Burrup, Oakes, Ovard
786	(786). Problems of Taxation and Financial Support of Public Institutions. (2:2:0) F.Su.	Burrup, Nuttall
798	(798). Doctoral Field Project. (Arr.) F.S.Su.	Staff

## Educational Philosophy and Programs

**Professor:** Lloyd.

**Associate Professor:** Alley (chairman, 202 McKay).

**Assistant Professor:** Ovard.

### Requirements

The department currently is organized to provide service courses for graduate students in other areas of the college and University. Normally students do not major in subject areas of the department; therefore, a major is not provided at the master's level. A minor in this field is provided for graduate students.

Graduate students enrolling in the area of philosophy of education are expected to take first the basic course in Ed. Phil. 604. Variations to this must be approved by the department chairman.

### Graduate Courses

#### Philosophy of Education

- 604 (604, 605). Comparative Current Educational Philosophy. (3:3:0) F.S.Su.  
Alley  
605 (605, 615). Educational Classics and Contemporary Issues. (3:3:0) S.  
Lloyd

#### History of Education

- 621 (621, 622). History of Education in Europe and America. (4:4:0) F.  
Staff  
631 (631). Education in a World Setting. (2:2:0) S.  
Romney

#### The School in the Social Order

- 642 (642). Education in the Social Order. (2:2:0) S.Su.  
Staff

#### Educational Objectives and Programs

- 646 (New). Objectives and Programs of Continuing Education. (2:2:0) Su.  
Staff  
662 (662). Philosophy of Program Planning. (2:2:0) S.  
Oakes

### General Courses

- 690, 691 (690, 691). Seminar. (1-3:1-3:0 ea.) F.S.  
Staff  
693, 694 (693, 694). Independent Readings. (1-2:3-9:0 ea.) F.S.  
Staff  
696, 697 (696, 697). Independent Research. (1-2:3-9:0 ea.) F.S.  
Staff  
698 (698). Field Project. (Arr.) Arr.  
Staff  
699 (699). Thesis. (Arr.) Arr.  
Staff

## Educational Research and Services

**Professors:** Downing (chairman, 255 McKay), Egbert\*, Lloyd, Reid, Romney.

**Associate Professors:** Bauer, Harris\* Krider, Parker.

**Assistant Professor:** Jensen.

### Fields

Educational psychology, school psychology (with Psychology Department).  
personnel and guidance, and special education.



### Requirements

The responsibility for satisfying the general regulations for advanced degrees, as outlined by the Graduate School, lies with the student. For a complete description of programs and for details regarding requirements, including testing, for admission to the department, the student should consult the chairman of the Department of Educational Research and Services prior to or at the time of application for admission to the Graduate School.

### Master's Degree

**Educational Psychology.** Full graduate standing in educational psychology is contingent on elementary or secondary certification plus 12 semester hours of psychology of which at least nine hours must be in basic psychology courses.

Master's degree. The student must complete course work including E.R.S. 541, 550, 560, 601, 610 or 611, 620, and 641. He must also write a thesis and pass a final oral examination.

**Personnel and Guidance.** Students seeking a graduate degree in personnel and guidance should have a suitable background of course work in a field such as psychology, sociology, or human development and family relationships.

Master's degree. Except with the approval of the department, the student must be certified prior to completing the master's degree. If he has not completed the following courses or their equivalents prior to entering the graduate program, the student must take in addition to the regularly prescribed courses: E.R.S. 540 and 550 and Psychology 111 and 378. The student must complete the following courses: E.R.S. 611, 620; either 622, 625, or 653; 641, 651, 670; and Psychology 640. He must also write a thesis or field project and pass a final oral examination.

**School Psychology.** This program is offered jointly with the Psychology Department. To be admitted to this program the student must have completed, or must complete in addition to the specified courses, the following: elementary or secondary certification; E.R.S. 540, 550, and 560; and Psychology 111, 185, 320 or 321, 360 and 365 or 311, 387, 445, 540, and 550.

Master's Degree. The student must complete the following courses: E.R.S. 606, 611, 612, 620, and 630; Psychology 640, 740, and 741; either E.R.S. 601 or Psychology 560 and six semester hours of practicum—four in E.R.S. and two in psychology. (A student majoring in psychology takes four semester hours of psychology and two hours of E.R.S. practicum.) He must also write an acceptable thesis based on original research.

**Special Education.** The Department of Educational Research and Services offers a master's degree in special education. In this program the teacher is prepared for work with children with motor or academic handicaps. To be admitted to graduate work in special education, the student must have a valid teaching certificate plus appropriate experience.

Master's degree. The student must complete the following courses: E.R.S. 560, 668, 676, 677, and Instruction 626 plus appropriate courses in an area of specialization. He must also write an acceptable thesis based on original research.

### Doctor's Degree

The Department of Educational Research and Services offers both the Doctor of Philosophy and the Doctor of Education degrees in educational psychology. Although these programs carry the same title, they prepare the candidate to serve in essentially different capacities. As a result, the candidate should discuss his goals with the chairman or some other member of the department before making a definite selection.

**Doctor of Philosophy Degree:** Full graduate standing in educational psychology is contingent on elementary or secondary certification plus 12 hours of psychology of which at least nine hours must be in basic psychology courses. In completing a doctoral major in educational psychology a candidate will be expected to have

competence in each of eight areas and to have gained more extensive coverage in at least one of these fields. Basic competence is defined as ability to pass a comprehensive examination covering the eight areas. In general, the comprehensive examination is drawn from subject matter covered in the following courses:

1. Statistics and research methods: E.R.S. 540, 541, and 641.
2. Measurement: E.R.S. 610 and 611; Psychology 378 and 640.
3. Learning: E.R.S. 601 and 791; Psychology 560.
4. Guidance and counseling: E.R.S. 550, 620, and 670.
5. Human development and personality: E.R.S. 606; Psychology 550.
6. Special education: E.R.S. 560.
7. Psychological and sociological foundations: Psychology 374, 610, 611; Sociology 405.
8. Educational foundations: Ed. Adm. 600; Ed. Phil. 604; Inst. 631, 656, 685 or 686.

Areas of specialization which have been established are: **statistics and research methods**—Psychology 574, Statistics 332 and 534, and either Psychology 670 and 671 or Statistics 431 and 531. (A student electing this specialization should not take E.R.S. 541.); **measurement**—E.R.S. 612, 790, and Psychology 740; **human development and personality**—H.D.F.R. 510, 611, and Psychology 552 and 750; **special education**—E.R.S. 612, 630, 666, 667, 691, and either 676 and 677 or 678 and 679. (Students will also take courses in specific areas of interest in special education.)

**Minors.** In addition to the major, the candidate for a Ph.D. degree in educational psychology must qualify in one related minor field. A minor is defined as 12 semester hours of acceptable course work.

**Doctor of Education Degree:** In order to be admitted to the program for the Doctor of Education degree in educational psychology the candidate must have completed the equivalent of an undergraduate minor in psychology, including a course in either child or adolescent psychology, and must have either an elementary or a secondary certificate. He must have also completed two years of successful professional experience. In completing an Ed.D. major in educational psychology, the candidate is expected to complete a minimum of 88 semester hours including: (1) a basic program consisting of E.R.S. 540, 541, 550, 560, 611, 620, 622, 625, 641, 651, 653, 670, 690, 771, 790, 791, and Psychology 560, 640, and 750; (2) three supporting fields including 24 hours of work with not less than 6 hours in any one of the three fields; and (3) an additional 16 hours to be selected in consultation with the chairman of the advisory committee. Suggested courses in each supporting field are as follows: **educational program and its improvement**—Instr. 631 or 656, 646 or 676, 685 or 686, and Ed. Adm. 600 and 654; **the school and the social order**—Ed. Phil. 605, 621, and Soc. 405; **psychological foundations**—Psychology 378, 540, 550, and 610.

The candidate is expected to complete a field project in the field of personnel and guidance.

## EDUCATIONAL PSYCHOLOGY AND GUIDANCE COURSES

### Graduate Courses

- 540 (540). Statistical Methods.** (2:2:0) F.Su. Bauer, Egbert  
 Consideration given to measures of central tendency, variability, and linear correlation; elementary concepts of probability and inference. Required but may not be counted as part of the 45 hours for the master's degree by majors in this department.
- 541 (541). Advanced Statistics.** (2:2:0) S.Su. Prerequisite: E.R.S. 540. Egbert
- 550 (550). Introduction to Guidance Services.** (2:2:0) F.S.Su. Downing, Jensen, Moses, Parker  
 Introduction to principles and practices of the guidance program in public schools. Designed for prospective teachers of both elementary and sec-



ondary levels. Required but may not be counted as part of the 45 hours for the master's degree by majors in this department.

- 601 (601, 602). Advanced Educational Psychology. (2:2:0) S. Su. Prerequisite: E.R.S. 403. Bauer, Harris
- 606 (606). Behavior Problems in the Schools.. (2:2:0) F.S.Su. Prerequisites: E.R.S. 403, 550. Downing
- 610 (610). Educational Tests and Measurements. (2:2:0) F.Su. Bauer, Harris
- 611 (611, 621). Guidance Testing and Diagnosis. (3:3:0) F.Su. Prerequisite: E.R.S. 550. Jensen, Moses
- 612 (612). Diagnosis of Achievement Difficulties. (2:2:0) F.Su. Prerequisite: E.R.S. 610 or 611. Harris, Krider
- 620 (620, 621). Counseling Theory and Practice. (3:3:0) F.Su. Prerequisite: E.R.S. 550. Downing, Moses, Parker, Reid
- 622 (622). Group Techniques for Counselors. (2:2:0) S.Su. Prerequisites: E. R.S. 550 and 620. Downing, Jensen, Moses
- 624 (624). Industrial Counseling. (2:2:0) Arr. Prerequisites: E.R.S. 550, 620, 651. Staff
- 625 (625). Advanced Counseling Theory. (2:2:0) S.Su. Prerequisites: E.R.S. 620 and Psychology 550. Parker, Reid
- 640 (640). Evaluation of Educational and Psychological Literature. (2:2:0) S. Su. Staff
- 641 (641). Educational Research and Thesis Writing. (2:2:0) F.Su. Prerequisite: E.R.S. 540. Egbert
- 650 (650). Guidance Workshop. (2:2:0) Arr. Prerequisite: E.R.S. 550. Staff
- 651 (651). Informational Services in Guidance. (3:3:0) S.Su. Prerequisite: E.R. S. 550. Downing
- 653 (653). Administration of Guidance Services. (2:2:0) S.Su. Prerequisite: E.R.S. 550. Downing
- 656 (656). Student Personnel Services in Higher Education. (2:2:0) S. Pre-requisite: E.R.S. 550. Lloyd
- 670 (670, 672, New). Practicum in Testing and Counseling. (5:2:10) F.S.Su. Prerequisite: consent of instructor. Jensen, Parker
- 675 (675). Practicum in School Psychology. (2-4:1-2:4-8) S. Prerequisite: consent of instructor. Moses
- 690 (690). Seminar in Personnel and Guidance. (1:1:0) F.S.Su. Prerequisite: consent of instructor. Staff
- 771 (New). Practicum in Counseling. (3:1:8) S.Su. Prerequisite: consent of instructor. Parker
- 790 (New). Seminar: Educational Measurement. (2:2:0) S.Su. Prerequisite: consent of instructor. Harris, Jensen
- 791 (New). Seminar: Learning Theory Applied to Education. (2:2:0) S.Su. Pre-requisite: Psychology 560. Bauer, Egbert

## SPECIAL EDUCATION COURSES

### Graduate Courses

- 560 (560). Education of Exceptional Children. (3:3:0) F.S.Su. Staff  
A general course designed to acquaint the student with the causes, recognition, incidence, and characteristics of all types of exceptional children. Designed to meet needs of both classroom teacher and person going into special education.
- 561 (561). Standard English Braille. (2:2:0) Arr. Staff
- 562 (562). Advanced Standard English Braille. (2:2:0) Arr. Prerequisite: E.R.S. 561. Staff
- 563 (563, 564). Problems in the Education of the Visually Handicapped. (3:3:0) Arr. Prerequisite: consent of instructor. Staff

## Graduate Courses

- 630 (630). **Corrective Teaching Techniques.** (2:2:0) S.Su. Prerequisite: E.R.S. 612 or consent of instructor. Krider
- 662 (662). **Workshop in Special Education.** (4:4:0) Arr. Prerequisite: consent of instructor. Krider
- 664 (664). **Special Education Services in Public Schools.** (2:2:0) Arr. Su. Staff
- 666 (665, 666). **Problems in the Education of Orthopedically Handicapped Children.** (3:3:0) F.Su. Prerequisite: E.R.S. 560. Staff
- 667 (661, 667). **Problems in the Education of Mentally Retarded Children.** (3:3:0) S.Su. Prerequisite: E.R.S. 560. Krider
- 668 (668). **Observation and Participation in Special Education.** (2:1:3) F.S.Su. Prerequisite: consent of instructor. Staff
- 676, 677 (674). **Practicum in Special Education.** (2:0:6 ea.) S.Su. Prerequisite: consent of instructor. Staff
- 678, 679 (674, New). **Practicum in Corrective Teaching.** (2:0:6 ea.) S.Su. Prerequisite: consent of instructor. Krider
- 691 (660). **Seminar in Special Education.** (2:2:0) S.Su. Prerequisite: consent of instructor. Krider
- See also Instruction 624, Arts and Crafts for the Handicapped.

## GENERAL COURSES

- 693, 694 (693, 694). **Independent Readings.** (1-2:1-2:2-4 ea.) F.S.Su. Staff
- 696, 697 (696, 697). **Independent Research.** (1:0:3 ea.) F.S.Su. Staff
- 698 (698). **Field Project for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Staff
- 699 (699). **Thesis for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Staff
- 798 (New). **Field Project for Ed.D. Degree.** (Arr.) F.S.Su. Staff
- 799 (New). **Dissertation for Ph.D. Degree.** (Arr.) F.S.Su. Staff

## Electrical Engineering Science

**Professors:** Bartholomew\*, Jonsson.

**Associate Professors:** Monson (chairman, 175 ELB), Westland.

The Department of Electrical Engineering Science offers the master's degree in the areas of electronics, communications, computers, acoustics, solid state, and automatic control. All students working toward a graduate degree in electrical engineering are expected to (1) fulfill the general requirements of the Graduate School and (2) complete a minimum of six semester hours of approved mathematics courses. Each student is required to take E.E. 698, Readings and Seminar, prior to the start of his graduate research. The student should normally choose a major professor, and with him determine an advisory committee prior to or at the beginning of his first semester of residence at the University.

In view of the engineering science emphasis given to the undergraduate curriculum, the transfer student may find it necessary and desirable to take certain courses normally required of the undergraduate student at Brigham Young University. Prospective majors should consult the department prior to registration to determine if such a course will be considered remedial or allowed to apply on the degree.

## Graduate Courses

- 611 (New). **Network Synthesis.** (3:3:0) Arr. Prerequisites: E.E. 312, 411. Staff  
Designed to present the basic theory for the synthesis of 2-terminal and 4-terminal networks. Various basic approaches are enumerated and ap-



plied to ladder and lattice types of filter networks. Insertion loss and phase shift characteristics and means of meeting such requirements are presented.

- 516 (511). **Servomechanisms.** (3:3:0) Arr. Prerequisites: E.E. 312, 411, and concurrent registration in E.E. 442, or E.E. 302; Math 316; C.E. 302 or 304.

Jonsson

Theory and application of electrical and electro-mechanical automatic control systems.

- 523 (523). **Digital Computer Engineering.** (3:2:3) Arr. Prerequisite: fourth year standing as an engineer.

Staff

The logical design and operation of digital computers.

- 528 (521). **Analog Computer.** (2:2:0) Arr. Prerequisite: E.E. 302 or 442.

Staff

Theory and operation of summing, integrating, and differentiating circuits; function generators and operational amplifiers and their applications to analog computers. Application of signal-flow graphs to the analysis and simulation of analog computer systems.

- 531 (531). **Power Systems.** (2:2:0) Arr. Prerequisite: E.E. 432. Bartholomew

Analysis and design of electrical power distribution systems and a study of electrical power distribution system protection.

- 537, 538 (537, 538). **Advanced Control Machinery Laboratory.** (1:0:3 ea.) S. Prerequisite: E.E. 432

Staff

Each course constitutes a block of experiments in the area of machinery control systems, machinery characteristics and power distribution methods. Registration is permitted for either course or both courses simultaneously.

- 541 (462). **Switching, Timing, and Pulse Circuits.** (4:3:3) F. Prerequisite: E.E. 442.

Staff

Passive and active circuits utilizing tubes, transistors, diodes and other devices.

- 567, 568 (567, 568). **Advanced Communications and Electronics Laboratory.** (1:0:3 ea.) S. Prerequisite: E.E. 462.

Staff

Each course constitutes a block of experiments in the area of U.H.F. techniques, electronic circuits, communication systems, pulse forming networks, transmission lines, and filters. Registration is permitted for either course or both courses simultaneously.

- 570 (550). **Illumination.** (2:2:0) Arr. Prerequisites: E.E. 312, 441. Monson

Principles and design of artificial illumination for various applications; lamp characteristics; measurements; costs.

- 580 (550). **Elements of Acoustics.** (2:2:0) Arr. Prerequisite: fifth year standing in electrical engineering.

Monson

Brief course in the fundamentals of sound production, transmission, and reception with an introduction into sound application in public address and other engineering systems.

- 581 (581, 582, 583). **Psycho-Acoustics.** (5:5:0) Arr. Prerequisite: E.E. 442.

Staff

Speech and hearing from a communication engineering viewpoint. Dynamical analysis of speech and hearing processes are developed. Known experimental facts about speech and hearing are systematically studied and compared with calculated results. Methods of calculating and measuring articulation index of talker-listener pair when using any specified type of communication system.

- 584, 585 (584, 585, 586). **Advanced Musical Acoustics.** (2:2:0 ea.) Arr. Prerequisites: Physics 561, 562, or E.E. 580.

Staff

Technical study of acoustical behavior of different musical instruments; consideration of sound power output of single instruments and ensembles; stereophonic reproduction of music; possibilities of electronic musical instruments.

- 587 (587). Architectural Acoustics.** (3:3:0) Arr. Prerequisites: Physics 211, 212. Staff  
 Fundamental behavior of sound in rooms; effects of shape and size upon perception of speech and music; proper use of public address and sound reinforcing systems; sound absorption and insulation properties of different kinds of room walls; kinds and amounts of sound absorption materials to use in sound treatment of rooms and auditoriums.
- 591, 592 (591, 592, 593). Seminar and Field Trips.** (1:0:3 ea.) F.S. Prerequisite: fifth year standing in electrical engineering. Staff  
 Student and faculty presentation of special topics and subjects of current interest; visits to industries displaying various types of electrical engineering applications. Participation on the annual field trip is required.
- 598 (594, 595, 596). Special Problem.** (Arr.) F.S. Staff  
 Registration by permission of professor sponsoring problem. A maximum of two credit hours may be applied toward filling the restricted elective requirement.
- 611 (New). Advanced Network Synthesis.** (3:3:0) S. Prerequisite: E.E. 511. Staff  
 A continuation of E.E. 511 Active elements are included in the design problem and some recent developments in this field are presented.
- 618 (New). Non-Linear Analysis.** (3:3:0) S. Prerequisite: E.E. 511. Staff  
 Analytical and topological methods of solving non-linear differential equations are presented covering both mechanical vibrations and electrical oscillations. Analysis in the  $n$  dimensional phase plane,  $Z$  transforms, and the contributions of such authors as Minorsky and Pontryagin are applied to feedback control systems involving multi-loops containing non-linear elements.
- 620 (New). Information Theory.** (3:3:0) Arr. Prerequisite: E.E. 462 or equivalent. Staff  
 Power spectrum analysis as applied to communications engineering is presented. Discrete systems, continuous signals, random noise, signal space, and correlation functions are applied to signal propagation and detection.
- 623 (New). Advanced Digital Computers.** (3:3:0) S. Prerequisites: E.E. 523, 541. Bartholomew  
 Advanced theory and operation of digital computers and their design and application to engineering, scientific and control problems.
- 641, 642 (New). Advanced Electronic Devices.** (3:3:0 ea.) F.S. Prerequisite: E.E. 541. Staff  
 A continuation of E.E. 461, 462, and 541. Advanced pulse techniques employing both vacuum tubes and solid state devices are considered. Particular emphasis is given to the effects of temperature, noise, stability problems, compensating means, and D.C. amplification.
- 645 (New). Microwave Devices.** (3:3:0) S. Prerequisite: E.E. 661. Staff  
 Consideration is given to electronic and solid state devices which have particular application to the propagation, attenuation, modification, and detection of frequencies at and above the S-band.
- 661, 662 (New). Advanced Electromagnetic Fields.** (3:3:0 ea.) F.S. Prerequisite: E.E. 461 or equivalent. Staff  
 Problems of wave propagation and reflexion are considered. Includes the study of transmission lines, antennas, and radiation.
- 697 (New). Research for Master's Degree.** (1-4:Arr.:Arr.) Arr. Staff
- 698 (New). Readings and Seminar.** (1:1:0) F. Prerequisite: graduate standing. Staff  
 It is expected that every graduate student will make a literature study and report the results of such readings, outlining his proposed problem, at a seminar with other graduate students and faculty before commencing his research and thesis.
- 699 (New). Thesis for Master's Degree.** (1-6:Arr.:Arr.) Arr. Prerequisite: graduate standing. Staff



English

**Professors:** B. Clark (chairman, 305 McKay), Christensen, Farnsworth, Hart, Jacobs, Young.  
**Associate Professors:** Britsch, Cheney, M. Clark, Larson, Monson, Spears\*, Tanner.  
**Assistant Professors:** Ellsworth, Gassman, Wood.

Requirements

A graduate may major in either American or English literature; he may minor in a subject outside the English department or in English literature, American literature, or language.

The following courses must also be included if the student did not complete

- a. 615. Bibliography and Methods of Research ..... 1 hour
- b. 525. Old English ..... 3 hours

The following courses must also be included if the student did not complete them as an undergraduate:

- a. 521. The History of the English Language ..... 3 hours
- b. 550. The Criticism and Appreciation of Literature ..... 3 hours

In fulfilling the thesis requirement for a master's degree in English, a student may select any one of the following three options: (1) one long thesis on a topic demanding research, criticism, or both; (2) three long papers written in three different areas of English or American language or literature and on topics demanding research, criticism, or both; (3) two long papers written in two different areas of English or American language or literature and on topics demanding research, criticism, or both, and one long paper in the area of imaginative writing.

The work done under any of the above three options is under the direction of the student's advisory committee and must fulfill all of the requirements of form, date of submission, and binding that apply to regular masters' theses.

Remedial Course

99 (99). Problems in Thesis Writing. (0:2:0) F.S.Su. Staff

Graduate Courses

- 500-509 (400-409). Eminent American Writers. (1:1:0 ea.) F.S. M. Clark, Staff  
Different writers are treated each year.
- 510-519 (410-419). Eminent English Writers. (1:1:0 ea.) F.S. Staff  
Different writers are treated each year.
- 521 (521). History of the English Language. (3:3:0) S. Christensen, Monson  
Course descriptive of the English language in various stages of its development, with background of related historical events.
- 525 (525). Old English. (3:3:0) F. Undergraduate prerequisite: approval of instructor. Young
- 526 (526). Middle English. (2:2:0) S. Undergraduate prerequisite: approval of instructor. Christensen, Monson
- 541 (541). English Drama to 1642. (2:2:0) F. Young  
Religious drama of the Middle Ages, court plays, and popular drama of the Renaissance, excluding Shakespeare.
- 542 (542). Restoration and Eighteenth Century Drama. (2:2:0) S. Gassman  
English drama from 1660 to 1800, with emphasis on high comedy, sentimental comedy, and heroic tragedy.
- 543 (543). Modern English and American Drama. (2:2:0) F. Tanner  
Major English and American dramatists since 1890.

- 550 (550). **The Criticism and Appreciation of Literature.** (3:3:0) S. Hart, Staff
- 582 (New). **Extended Readings in Shakespeare.** (3:3:0) F.S. Young  
Extensive study of the body of Shakespeare's works.
- 615 (615). **Bibliography and Methods of Research.** (1:1:0) F.Su. Larson
- 625 (625). **Beowulf.** (2:2:0) S. Young, Staff
- 631 (631). **The English Novel.** (2:2:0) F. B. Clark
- 635 (635). **The American Novel.** (2:2:0) S. M. Clark, Jacobs, Staff
- 641 (641). **The English Drama.** (2:2:0) S. Staff
- 661 (661). **Colonialism and Puritanism in American Literature.** (2:2:0) S. Jacobs, Staff
- 662 (662). **Romanticism in American Literature.** (2:2:0) F. Staff
- 664 (666). **Realism and Naturalism in American Literature.** (2:2:0) F. M. Clark, Jacobs, Staff
- 671 (671). **The Medieval Period in English Literature.** (2:2:0) S. Christensen
- 672 (672). **The Renaissance in English Literature.** (2:2:0) F. Larson, Young
- 673 (673). **Neo-Classicism in English Literature.** (2:2:0) S. Gassman, Hart
- 674 (674). **Romanticism in English Literature.** (2:2:0) F. Cheney, B. Clark
- 675 (675). **The Victorian Age in English Literature.** (2:2:0) S. B. Clark, Farnsworth
- 682 (682). **Shakespeare.** (2:2:0) F. Hart
- 691 (New). **Research in Folklore.** (2:2:0) S. Cheney  
Directed study and research in folk tales, folk poetry, etc., especially as they are related to the Mormon heritage and tradition.
- 695 (695). **Individual Readings in English.** (1-2:1-4:0) F.S.Su. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff

## Food and Nutrition

**Professors:** Morris (chairman, 2218 SFLC), Trunnell.

**Associate Professor:** Bennion.

### Requirements

For full graduate standing a student must have completed a bachelor's degree with a major in food and nutrition or a closely related field with basic courses in the physical and biological sciences. These basic sciences must have included the following: general chemistry, 5 semester hours; organic chemistry, 5 semester hours; and biochemistry, 4 semester hours. Students with subject matter deficiencies may be recommended for admission, but these deficiencies must be removed before a degree is granted.

The specific selection of courses for a graduate degree is based upon the student's objectives, interest, and preparation. A suitable program is planned in consultation with the major professor. However, all candidates for a master's degree in food and nutrition must have completed the following: quantitative chemistry, 3 semester hours; food bacteriology, 2 semester hours; physiology, 4 semester hours; and Food and Nutrition 535, 564, 690, 691, and 695 or 696.

### Graduate Courses

- 535 (535). **Advanced Human Nutrition.** (2:2:0) S. Prerequisite: Food and Nutrition 335 or equivalent. Morris
- Advanced study of the principles of human nutrition.
- 564 (564). **Experimental Cookery.** (3:2:3) F. Prerequisites: Food and Nutrition 264; Chemistry 284. Bennion
- Advanced study of the structure of food and the chemical and physical changes occurring during processing and preparation.



- 566 (566, 568). Chemistry Applied to Food.** (2:2:0) Arr. Bennion  
Understanding quality in prepared food. Composition of food and practices followed in preparation are related to the colloidal nature of food and to chemical and bio-chemical reactions involved.
- 590 (590). Readings in Food and Nutrition.** (2:2:0) F. Prerequisite: 10 credit hours in food and nutrition or consent of instructor. Staff
- 594 (594). Special Problems in Food.** (1-2:0:3-6) S. Prerequisite: permission of instructor and chairman of department. Designed for students who have completed at least 12 hours in food and nutrition including Food and Nutrition 590. Staff  
Independent study of a special problem in food under direction of an instructor.
- 595 (595). Special Problems in Nutrition.** (1-2:0:3-6) S. Prerequisite: permission of instructor and chairman of department. Designed for students who have completed at least 12 hours in food and nutrition including Food and Nutrition 590. Staff  
Independent study of a special problem in nutrition under direction of an instructor.
- 645 (630). Advanced Child Nutrition.** (2:2:0) Arr. Prerequisites: Food and Nutrition 335 and 345 or equivalent. Morris
- 664 (644, 646). Science and Experimental Foods.** (3:2:3) Arr. Prerequisite: Food and Nutrition 564. Bennion  
Protein foods; simple colloidal systems; gels, emulsions, and foams.
- 666 (646, 648). Science and Experimental Foods.** (3:2:3) Arr. Prerequisite: Food and Nutrition 564. Bennion  
Batters, doughs, and starch-thickened products.
- 672 (622). Recent Advances in Foods.** (2:2:0) Arr. Prerequisite: Food and Nutrition 654 or equivalent. Bennion
- 675 (625). Recent Advances in Nutrition.** (2:2:0) Arr. Prerequisite: Food and Nutrition 535 or equivalent. Morris
- 690 (696). Seminar in Food.** (1-2:1-2:0) F. Staff
- 691 (697). Seminar in Nutrition.** (1-2:1-2:0) S. Staff
- 694 (694). Independent Project in Food and Nutrition.** (1-3:0:3-9) Arr. Prerequisite: Food and Nutrition 695 or 696. Staff
- 695 (684). Methods of Research in Nutrition.** (2:1:4) F. Prerequisite: Food and Nutrition 535. Staff
- 696 (685). Methods of Research in Foods.** (2:1:4) Arr. Prerequisite: Food and Nutrition 564. Staff
- 699 (699). Thesis for Master's Degree.** (2:6:2-4:0) Arr. Staff

## Geography

**Assistant Professor:** Layton\* (chairman, 328 JK).

### Requirements

The department offers work leading to the M.S. or the M.A. degree. Candidates for either degree will be admitted on a provisional basis until completion of an oral examination demonstrating a sound knowledge of subject matter as covered in the undergraduate degree. Students must also be prepared to present evidence of their ability to complete written assignments if they have not previously completed such work as undergraduates within the department. Deficiencies in any area must be removed either by additional class work, or by individual study, as determined in consultation with the faculty of the department. Admission on a degree-seeking basis will be made only after completion of this examination and arrangement of any needed remedial work.

Degree-seeking students are allowed a wide range of choice in individual projects and supporting classes according to their particular interest. All such classes must be approved, however, by the major and minor professors in con-

sultation with the student at the beginning of his work. All candidates must include Geography 601, 620, 698, and 699 within their programs.

### Graduate Courses

- 504 (570). **Geographic Field Techniques.** (2:1:2) S. Not offered 1961-62. For majors only. Staff
- 522 (565). **Urban Geography.** (2:2:0) F. Layton  
Distribution of urban areas, their development. internal land use patterns, and functions in the world's economy.
- 533 (560). **Industrial Geography.** (3:3:0) Prerequisite: Geography 231. Layton  
A systematic analysis of location patterns of major industries in the United States; raw materials, power resources, and other factors in industrial location.
- 552 (611). **United States.** (2:2:0) Offered 1961-62 and alternate years. Prerequisite: Geography 351. Staff  
A concentrated study of various phases of the geography of the U.S. Considerable research and reporting by individual students is required.
- 556 (621). **South America.** (2:2:0) Offered 1961-62 and alternate years. Prerequisite: Geography 455. Layton  
Physical and cultural landscapes of geographic regions of South America.
- 557 (622). **Caribbean Area.** (2:2:0) Offered 1962-63 and alternate years. Prerequisite: Geography 455. Layton
- 561 (531). **Western Europe and the Mediterranean.** (2:2:0) S. Not offered 1961-62. Prerequisite: Geography 460. Staff  
A comprehensive study of the systematic and regional geography of non-Communist Europe.
- 562 (632). **U.S.S.R. and Its Satellites.** (2:2:0) Not offered 1961-62. Prerequisite: Geography 460 or 470 or consent of instructor. Staff  
A concentrated study of the physical features, resources, agriculture, industries, and distribution of peoples.
- 571 (641). **Orient.** (2:2:0) F. Not offered 1961-62. Prerequisite: Geography 470. Staff  
A comprehensive study of the systematic and regional geography of the Orient.
- 585 (580). **Geography of Underdeveloped Areas.** (2:2:0) S. Prerequisite: consent of instructor. Staff  
Physical, economic, and human geography as it affects the world's underdeveloped areas with emphasis on future development possibilities.
- 598 (598). **Seminar.** (1:1:0) Arr. Staff
- 601 (New). **Physical Geography.** (2:1:2) F. Staff
- 620 (New). **Cultural Geography.** (2:1:2) S. Staff
- 690, 691 (690, 691, 692). **Readings.** (1:1:0) F.S. Staff
- 695 (695). **Special Problems.** (1-2:1-2:0) F.S. Staff
- 696, 697 (605, 606, 607). **Research.** (2:2:0) F.S. Staff
- 698 (698). **Graduate Seminar.** (1:1:0) Arr. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:1-4:0) F.S. Staff

The following course is applicable in geography:

History 585 (585). **Historical Geography of the United States.** (2:2:0)

### Geology

**Professors:** Bullock (chairman, 291 ESC), Bissell, Hansen, Hintz\*.

**Associate Professor:** Rigby.

**Assistant Professors:** Bushman, Clark, Phillips.



### Fields

Economic geology and mineralogy;  
stratigraphy, sedimentation, and paleontology;  
structural, field, and dynamic geology.

### Requirements

The following courses, or their equivalents from another university, are prerequisite for all geology students working toward an advanced degree in geology: Geology 111, 112, 251, 252, 311, 312, 313, 460, 470, 480, and 492. A summer field camp, Geology 410, or its equivalent at another institution, is a necessary prerequisite.

The Department of Geology offers training for the master's degree and the degree of Doctor of Philosophy, with specialization in various fields of geology. The graduate student is urged to acquire a broad foundation in geology and to secure adequate training before he concentrates on a chosen branch of the subject. To this end certain fundamental course work is recommended for all students. The course offerings are sufficiently varied and complete in order that all students may select courses according to their needs and inclinations as determined in consultation with their advisers.

It is expected that graduate students will meet all the general requirements for advanced degrees as outlined by the Graduate School. The responsibility of meeting these requirements rests with the student.

The graduate program of the Department of Geology offers instruction in three broad divisions of geology, with the following course offerings in each division: (1) economic geology and mineralogy—Geology 520, 540, 545, 551, 621, 641, 646, 653, 655, 661, and 662; (2) stratigraphy, sedimentation, and paleontology—Geology 574, 575, 576, 580, 581, 670, 671, 678, 680, 681, 682, 684, 685; and (3) structural, field, and dynamic geology—Geology 507, 511, 512, 530, 535, 610, and 615.

A student may select any one of the three divisions for a major. He may elect one or both of the remaining divisions for his minor(s). Geology 507, 512, and 551 are required of all graduate students. Geology 696, 698, 699, and 799 are variable credit courses commensurate with work completed in each of these areas. A student should not register for Geology 699 or 799 until he has essentially completed his research and is prepared to write his thesis or dissertation.

**Master's Degree.** (For general requirements see Graduate School regulations.) Requirements for a master's degree in geology include: (1) at least 16 hours of formal course work in the major field and at least 10 hours of formal course work in one or two minor fields; (2) a written exploratory examination at the beginning of the graduate program; (3) a comprehensive oral examination on the graduate course work prior to his thesis defense; (4) a thesis embodying the results of research under a faculty member's supervision; and (5) a final oral examination on the research thesis.

**Doctor of Philosophy Degree.** (For general requirements see Graduate School regulations.) Requirements for a Doctor of Philosophy degree in geology include: (1) a minimum of 30 hours of formal course work in the major field and a minimum of 15 hours of formal course work in each of two minor fields (one of the minors may be a related field outside of the Department of Geology in which upper division and graduate courses will be acceptable.); (2) one degree or one year of acceptable graduate study at another institution; (3) a comprehensive examination after 60 hours of graduate work and at least one academic year prior to graduation; (4) a dissertation embodying the results of original research; and (5) defending his dissertation before a formally appointed committee at the close of his final year of study.

### Graduate Courses

**501 (501). Rocks and Minerals.** (2:2:0) F.Su.

Staff

Introductory study of fundamentals of rock and mineral classification and identification. Designed to acquaint the student with the earth's com-

mon raw materials, their occurrences, and uses. For students other than geology majors.

- 502 (502). **Geology for Teachers.** (2:2:0) S.Su. Home Study also. Bushman  
Designed to acquaint the teacher with sources of information, projects, and illustrative materials useful in the classroom.
- 507 (507). **Founders and Concepts of Geology.** (2:2:0) F. Bushman  
The historical development of geology and the men who contributed to it; the concepts and philosophy that make geology distinct from other sciences; analysis of some of the more controversial problems in geology.
- 511 (511). **Geomorphology.** (3:3:0) S. Bushman  
The historical development of geomorphic concepts. The description of land forms and evaluation of the processes that formed them, and the application of this knowledge to paleogeography and economic geology.
- 512 (512). **Geology of North America.** (4:3:2) S. Rigby  
A region by region study of the areal geology, physiography, and geologic development of Canada, United States, and Mexico.
- 520 (520). **Petroleum Geology.** (4:4:0) F.Su. Hansen  
The origin, classification, physical properties, distribution, accumulation, and methods of exploration of petroleum.
- 530 (530). **Engineering Geology.** (3:3:0) F. Staff  
The geological principles and phenomena which are important to an understanding of engineering problems (especially civil engineering), and the relationships which exist between the science of geology and the practical aspects of engineering.
- 535 (535). **Ground Water.** (4:4:0) S. Hansen  
The origin, classification, migration, distribution, and production of water found beneath the earth's surface.
- 540 (540). **Geophysics.** (3:3:0) F. Prerequisites: Math 214, Physics 213. Staff  
The principal objective is to familiarize the student with the scope of geophysics, give insight into methods used by geophysicists, and to outline some of the most important discoveries of these researches.
- 545 (645). **Geochemistry.** (3:3:0) F. Prerequisites: Math 213, Physics 213. Staff  
The kinds and abundance of elements in the earth, their distribution, and the redistribution in various geologic processes.
- 551 (651). **Optical Petrography.** (5:3:4) F. Prerequisites: Geology 252, Physics 202 or 213. Phillips  
The behavior of light in crystalline substances and its application to the microscopic identification of minerals as fragments and in thin-section. A consideration of the various schemes of rock classification and the petrographic (microscopic) description of rocks (igneous, sedimentary, and metamorphic) with regard to textures, structures, and probable mineral associations and their genetic implications.
- 574 (475). **Principles of Stratigraphy.** (2:2:0) F. Bissell  
Study and interpretation of stratified rocks; principles of their origin, distribution, and correlation.
- 575 (575). **Pre-Cambrian and Paleozoic Stratigraphy.** (3:3:0) F. Hintze  
Synthesis of regional stratigraphic relation in North America.
- 576 (576). **Mesozoic and Cenozoic Stratigraphy.** (3:3:0) S. Bushman  
The basins of deposition (throughout the U.S.) of Mesozoic and Cenozoic rocks and key fossils associated with them. Special emphasis on the distribution of these rocks in the state of Utah.
- 580 (580). **Invertebrate Paleontology (Protozoans through Brachiopods.** (4:3:2) F. Clark  
Designed for the upper division or graduate student who desires a broad background in paleozoology including morphology, paleology, evolution, and stratigraphic significance of invertebrates. Basic course for a student planning to do graduate work in paleontology or stratigraphy.
- 581 (581). **Invertebrate Paleontology (Mollusks through Hemichordates).** (4:



- 3:2) S. Prerequisite: Geology 580. Clark  
Continuation of Geology 580.
- 591, 592 (591, 592, 593). Seminar. (1:1:0 ea.) F.S. Staff
- 610 (610). **Structural Geology.** (3:3:0) S. Hintze  
Earth structures and their origin, emphasizing foreign examples.
- 615 (615). **Photogeology.** (3:1:4) S. Hintze  
Techniques useful to practicing geologists, using parallax bar and various instruments applicable to contact print photos.
- 621 (621). **Oil Field Development.** (3:3:0) S. Staff  
Factors which are important to the production of oil and gas and the economical development of oil and gas fields.
- 641 (641). **Geophysical Exploration.** (5:4:2) S. Not given this year. Staff
- 646 (646). **Geochemical Techniques and Mineral Prospecting.** (3:2:2) S. Pre-requisite: Geology 545. Not given this year. Staff  
Kinds of techniques employed in geochemical prospecting. A field problem in geochemical prospecting occupies half the course.
- 653 (653). **Determinative Mineralogy.** (4:2:4) S. Prerequisite: Geology 551. Phillips  
Instruction in universal stage, polished opaque section, powder x-ray diffraction, and other advanced methods of mineral identification.
- 655 (655, 656). **Igneous and Metamorphic Petrology.** (5:4:2) S. Bullock  
A detailed study of igneous and metamorphic rocks, the methods of their classification and conditions of their formation.
- 661 (661). **Ore Deposits.** (4:3:2) F. Prerequisite: Geology 460. Bullock  
A detailed survey of the major mining districts.
- 662 (662). **Non-Metallic Deposits.** (3:3:0) F. Phillips  
A detailed study of non-metallic mineral deposits, their mode of occurrence and their applications in the modern industrial world.
- 670 (670, 673). **Sedimentation and Sedimentary Tectonics.** (4:3:2) F. Bissell  
Fundamental concepts in the science of sedimentology, and laboratory exercises illustrative of processes of sedimentation, followed by review and discussions of tectonic environments which control sedimentation. Field trips are taken into areas illustrative of the subject matter.
- 671 (671, 672). **Sedimentary Petrology and Petrography.** (4:3:2) S. Bissell  
Field and laboratory classifications, and studies of the sedimentary rocks. Particular emphasis is placed on carbonate petrology and petrography, and application to oil occurrence.
- 678 (678). **Subsurface Methods.** (4:2:4) F. Prerequisite: Geology 551. Bushman  
Designed to acquaint the student with the tools and techniques employed by the sub-surface geologist in describing the lithologic characteristics of sub-surface rock, and the use of this information for interpreting sedimentation environments, geologic structures, and stratigraphic correlation.
- 680 (680). **Micropaleontology.** (3:2:2) F. Prerequisite: Geology 480 or 581. Clark  
A systematic study of the geologically important microfossils, including techniques, morphology, and stratigraphic significance. Conodonts, ostracodes, and foraminifera are stressed.
- 681 (681). **Quantitative Paleontology.** (3:3:0) F. Prerequisite: Geology 480 or 581. Rigby  
Introduction to biometrics and systematics of fossil organisms and of fossil assemblages.
- 682 (682). **Vertebrates Paleontology.** (3:3:0) S. Prerequisite: Geology 480 or 581, or consent of instructor. Clark  
The backboneed animals through time (Agnatha through Mammalia). Morphology, ecology, phylogeny, and stratigraphic significance are stressed.
- 684 (684). **Stratigraphic Paleontology.** (3:2:2) F. Prerequisite: Geology 480 or 581. Rigby

The characteristic fossil assemblages and chronologically significant index fossils for each of the periods of geologic time.

- 685 (685). **Paleoecology.** (4:3:2) S. Prerequisite: Geology 480 or 581. Rigby  
 Interpretation of ancient environments and of the adaptation of organisms to these environments as shown by a systematic treatment of each of the major taxonomic groups and by selected analyses from the professional geologic literature.
- 696 (696). **Readings and Conference in Geology.** (1-4:1-4:0) F.S.Su. Staff  
 697 (New). **Directed Field Studies.** (Arr.) F.S.Su. Staff  
 Supervised field work in any of the fields of specialization in geology for candidates for master's degrees.
- 698 (698). **Research.** (1-4:1-4:0) F.S.Su. Staff  
 699 (699). **Thesis for Master's Degree.** (1-6:1-4:0) F.S.Su. Staff  
 797 (New). **Directed Field Studies.** (Arr.) F.S.Su. Staff  
 Supervised field work in any of the fields of specialization in geology for candidates for Ph.D. degrees.
- 799 (799). **Dissertation for Doctor of Philosophy Degree.** (Arr.) F.S.Su. Staff

## Health and Safety Education

**Professors:** Hart, Hartvigsen.

**Associate Professors:** Watters (chairman, 224 SFH), Nicholes.

**Assistant Professor:** Geddes.

### Requirements

The basic requirements for the master's degree in health education are the same as the general Graduate School requirements. In addition, an oral examination is administered to each student early in the first semester. The purpose of the examination is to give guidance in the courses and studies leading to the master's degree. Recommended courses are set up after consultation with the college graduate chairman and the major chairman.

### Graduate Courses

- 501 (501). **Health Education Workshop.** (1-2:Arr.:0) F.S.Su. Staff  
 Intended primarily for extension credit and/or summer school. Involves a presentation of health education problems followed by discussions. Conducted on a workshop basis.
- 521 (521). **Evaluation and Selection of School Health Material.** (2:2:0) F. Duerden  
 Pamphlets, brochures, films, textbooks, and other school health resource materials are evaluated and selected for present and future use.
- 530 (530). **First Aid Instructor.** (2:2:1) F. Watters  
 Designed to qualify instructors in Red Cross first aid, so that they may conduct classes to qualify individuals for standard and advanced Red Cross cards.
- 551 (551). **Field Work in Community Health.** (2:Arr.:Arr.) S. Prerequisite: Health 451. Duerden  
 Designed to broaden the understanding of community health agencies, their roles, programs, and relationships. Accomplished by field introductions to the various official and voluntary health agencies followed by the selection of agencies in which to do field work during the semester.
- 552 (552). **School Health Services.** (2:2:0) S. Staff  
 Considers desirable school health services and functions and relationships to public education and education law. Coordinates school health services with community programs.
- 560 (332, 560). **Stimulants and Depressants.** (2:2:0) F. Nicholes  
 The physiology and biological chemistry of stimulants and depressants.



693	(693). Research in Health Sciences. (2:1:2) F.S.	Staff
	Independent and/or directed research in problems associated with the health sciences. Gives credit to graduate students involved in directed or independent research from grant-in-aid, fellowship, or contract grant support.	
694	(694). Seminar in Readings. (2:2:0) S.Su.	Staff
696	(696). Seminar in Problems. (1:1:0) F.Su.	Staff
698	(698). Field Project. (1-4:Arr.:Arr.) S.	Staff
699	(699). Thesis for Master's Degree. (1-6:2-5:0) F.S.Su.	Staff

The following courses are applicable in health education:

Bacteriology 121. General Bacteriology. (3:3:2)	
or	
Bacteriology 331. Microbiology. (4:2:6)	
Bacteriology 311. Sanitation and Public Health. (2:2:0)	
Chemistry 101. Introductory Inorganic Chemistry. (4:4:3)	
or	
Chemistry 105. General College Chemistry. (4:4:2)	
or	
Chemistry 111. Principles of Chemistry. (4:5:0)	
Chemistry 580. Metabolic Processes. (2:2:0)	
E.R.S. 540. Statistical Methods. (2:2:0)	
E.R.S. 550. Introduction to Guidance Services. (2:2:0)	
Food and Nutrition 115. Essentials of Nutrition. (2:2:0)	
Food and Nutrition 535. Advanced Human Nutrition. (2:2:0)	
Geography 585. Geography of Underdeveloped Areas. (2:2:0)	
H.D.F.R. 510. Advanced Child Development. (3:3:0)	
H.D.F.R. 580. Introduction to Marriage and Family Counseling. (2:2:0)	
Physical Education 344. Physiology of Activity. (3:3:0)	
Psychology 185. Physiological Psychology. (2:2:0)	
Psychology 340. Mental Hygiene. (3:3:0)	
Psychology 445. Exceptional Children. (3:3:0)	
Psychology 540. Abnormal Psychology. (3:3:2)	
Psychology 585. Advanced Physiological Psychology. (3:3:0)	
Sociology 449. Community Organization, Action, and Planning. (3:3:0)	
Sociology 580. Social Relations in Medical Health Organizations. (3:3:0)	
Speech 545. Public School Audiometry. (2:2:2)	
Zoology 264. Anatomy and Physiology. (5:3:4)	
E.R.S. 620. Counseling Theory and Practice. (3:3:0)	
Food and Nutrition 675. Recent Advances in Nutrition. (2:2:0)	
Food and Nutrition 695. Methods of Research in Nutrition. (2:1:4)	
Instruction 662. Philosophy of Program Planning. (2:2:0)	
Physical Education 660. Measurement and Evaluation. (3:3:0)	
Physical Education 691. Seminar in Administration and Public Relations. (3:3:0)	
Zoology 662. Advanced General Physiology. (3:3:0)	

## History

Professors: Campbell (chairman, 340 McKay), Hafen, Poll, Swensen.  
Assistant Professors: Addy, Jensen.

### Requirements

The Department of History offers work leading to the Master of Arts, Master

of Science, and Doctor of Philosophy degrees.

A student undertaking work toward a graduate degree in history is expected to complete, outside his graduate degree program, any courses which are specifically listed in the undergraduate major program of this University which he has not already taken. In addition to the documents required by the University for admission to degree-seeking status, the prospective student is asked to provide the department with a term paper or comparable example of his undergraduate written work in history. Unless he has already taken the departmental senior comprehensive examination as an undergraduate, he may be asked to take it prior to admission to degree-seeking status; in either case a grade of "B" is ordinarily prerequisite for such admission. Where remediable deficiencies in preparation are believed to exist, the department may prescribe undergraduate course work as a condition of admission.

### **Master's Degree**

The requirements for a Master of Arts or a Master of Science degree in history are the general requirements of the Graduate School.

### **Doctor of Philosophy Degree**

**Course Requirements.** Course work in the following areas must be completed.

Historiography and methods of historical research.

Methods of teaching history in college.

A course in the 600 series in each of the fields offered for examination.

**Subject Examinations.** When, in the opinion of the advisory committee, the student is ready, and in no case earlier than the beginning of the second year of graduate study, he may take the subject examinations in the following sequence:

**Written Examinations:** The student is required to show familiarity with fundamental historiography and with the basic structure and developments in (1) the area of major emphasis and research, (2) three additional areas of history and (3) a related area offered in a department other than history. Both hemispheres must be represented in the history areas chosen. The areas of history are:

Ancient history

Medieval history

Early modern European history (1500-1815)

Modern European history (1789-present)

Latin American history

History of Asia

United States history (to 1865)

United States history (since 1865)

Western American history

**Oral Examination:** The oral examination, which must be taken not less than six months prior to the awarding of the degree, deals intensively with the factual structure, major concepts and interpretations, and bibliography in the field of major emphasis and research, and reviews the additional areas of history and the related outside area.

All the written examinations must be satisfactorily completed before the oral examination may be taken. In the event of failure, any examination may be repeated once, no less than one semester after the unsatisfactory performance. Successful completion of the subject examinations is the basis for advancement to candidacy for the doctor's degree.

**Dissertation.** The student must present a dissertation which represents an original contribution to historical knowledge and which shows ability to use sources in a discriminating way. In a final oral examination, he is tested on the historical setting, subject and methods of the dissertation, and is expected to defend its conclusions.

### **Graduate Courses**

In the Department of History, courses in the 500 series provide systematic



coverage of rather broad areas of subject matter through text and library readings, lectures, reports, and class discussions. A student who has not completed the relevant courses from among History 110, 111, 120, and 121 should obtain permission of the instructor before enrolling in any of these courses.

- 512 (512). **Medieval Thought and Culture.** (3:3:0) (1962-63 and alternate years.) Swensen
- 520 (New). **Eighteenth Century Europe.** (2:2:0) S. (1961-62 and alternate years.) Addy
- 522 (522). **Nineteenth Century Europe.** (2:2:0) (1962-63 and alternate years.) Addy
- 525 (525). **European Diplomatic History since 1815.** (2:2:0) (1962-63 and alternate years.) Jensen  
The most influential ideas and intellectual movements of the last three centuries.
- 548 (548). **Culture of Asia.** (2:2:0) F. (1961-62 and alternate years.) Hyer
- 562 (562). **American Westward Movement to 1825.** (3:3:0) F. Hafen
- 563 (563). **American Westward Movement after 1825.** (3:3:0) S. Hafen
- 572 (572). **American Revolution and the Confederation.** (2:2:0) F. Backman
- 575 (675). **The New Nation, 1787-1815.** (2:2:0) S. (1961-62 and alternate years.) Campbell
- 576 (676). **Jacksonian America.** (2:2:0) (1962-63 and alternate years.) Perkins
- 577 (677). **Civil War and Reconstruction.** (2:2:0) (1962-63 and alternate years.) Poll
- 578 (678). **American Industrial Revolution.** (2:2:0) F. (1961-62 and alternate years.) Poll
- 585 (585). **Historical Geography of United States.** (2:2:0) (1962-63 and alternate years.) Staff

In the Department of History, courses in the 600 series, excepting seminars, develop selected problems within the general areas of the course titles through extensive library reading, reports, and class discussions. Seminars require each participant to produce a substantial research paper. Seniors who have completed all of the specifically required courses for the undergraduate major may enroll in these courses with the permission of the instructor.

- 606 (606). **Greek Thought.** (2:2:0) (1962-63 and alternate years.) Swensen
- 618 (618). **Renaissance and Reformation.** (2:2:0) S. (1961-62 and alternate years.) Jensen
- 621 (621). **Modern Europe.** (2:2:0) (1962-63 and alternate years.) Jensen
- 640 (640). **The Far East.** (2:2:0) (1962-63 and alternate years.) Hyer
- 650 (650). **Latin America.** (2:2:0) F. (1961-62 and alternate years.) Addy
- 656 (656). **Southwestern United States.** (2:2:0) (1962-63 and alternate years.) Hafen
- 670 (670). **Colonial America.** (2:2:0) (1962-63 and alternate years.) Bushman
- 679 (679). **Contemporary United States History.** (2:2:0) S. (1961-62 and alternate years.) Poll
- 694 (694). **Seminar in European History.** (2:2:0) F. Staff
- 695 (695). **Seminar in Western American History.** (2:2:0) F. Staff
- 696 (696). **Seminar in United States History.** (2:2:0) S. Staff
- 697 (697). **Seminar in Utah History.** (2:2:0) S. Staff
- 698 (698). **Special Readings in History.** (1-2:0:Arr.) F.S.Su. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:0:Arr.) F.S.Su. Staff
- 799 (799). **Dissertation for Doctor's Degree.** (1-4:0:Arr.) F.S.Su. Staff

The following courses are applicable in history:

- Economics 274.** Economic History of the United States. (3:3:0)  
**Library Science 370.** Historical Bibliography and Methods of Research. (2:2:0)  
**Political Science 306.** History of American Political Thought. (2:2:0)  
**Political Science 322.** Contemporary Problems. (2:2:0)  
**Political Science 557.** Government and History of Canada. (3:3:0)  
**Political Science 571.** American Foreign Policy. (3:3:0)  
**Political Science 595.** American Constitutional Development. (2:2:0)

## History and Philosophy of Religion

**Professors:** Nibley, Rich, Yarn.

**Associate Professors:** Andrus, Barron, Clark, Larson, Riddle.

**Assistant Professors:** Madsen (chairman, 112 S), Backman, Horsley, Shaw.

### Requirements

The Department of History and Philosophy of Religion offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before beginning work leading to one of these degrees. The admissions committee of the graduate faculty of religion determines if the student is properly prepared.

Each student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility of knowing and fulfilling these regulations and requirements rests with the student.**

**A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the chairman of graduate studies in religion.**

### Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion carefully studies and evaluates his preparation and fitness for a graduate program. After acceptance the student is assigned to an advisory committee.

### Doctor of Philosophy Degree

The student must achieve a thorough mastery of his major, minor, and related fields, a program which will require a minimum of 90 semester hours credit. Part of this requirement may be fulfilled in the completion of the "core" courses listed below.

One foreign language is required before admission to the doctoral program. The other must be mastered before completion of the "core" requirements. Upon completion of the "core" requirements with distinction ("B" grade or better), a program normally requiring two years, a student must pass a series of written comprehensive examinations and an oral examination on the subject matters represented in the "core" courses. Should the student fail the examinations, the question of whether or when he may repeat them is determined by his advisory committee in consultation with the admissions committee. The comprehensive examinations may not be attempted more than twice. In addition to the "core" requirements the student is expected to complete at least 30 hours of specialization in his major and minor fields.

**"Core" Courses:** Bible and Modern Scripture (Bible) 411, 501, 502, 503, 511, 512; (Scripture) 527, 621, 624; History and Philosophy of Religion (History of Religion) 441, 442, 451, 452, 555, 556, 645, 646, 657, 658; (Philosophy) 480, 580, 581, 583, 584; Religious Education 670; Theology 530.



## HISTORY OF RELIGION

## Graduate Courses

- 545 (307). **Great Figures of L.D.S. Church History.** (2:2:0) F.S.Su. Barrett  
Biographical study of significant L.D.S. Church personalities of the first half century of the restoration.
- 546 (524). **Social, Economic, and Political Thought of Joseph Smith.** (2:2:0) F. S. Andrus
- 551 (514). **The Primitive Church.** (2:2:0) F. Nibley
- 552 (515). **Christianity in the Second and Third Centuries.** (2:2:0) F.S. Nibley
- 553 (351). **Great Figures in Christian History.** (2:2:0) F.S.Su. Horsley  
Biographical study of significant Christian personalities and their contributions to Christianity from Paul to Joseph Smith.
- 554 (352). **Martin Luther, Forerunner of the Restoration.** (2:2:0) F.S.Su. Horsley  
Luther's life, theology, and influence upon Protest-Christians, with special emphasis upon the significance of Luther for Mormonism.
- 555 (581, 582). **Comparative World Religions.** (2:2:0) F.Su. Staff  
Hinduism, Jainism, Sikhism, Buddhism.
- 556 (582, 583). **Comparative World Religions.** (2:2:0) S.Su. Staff  
Taoism, Confucianism, Shintoism, Judaism, Zoroastrianism, and Islam.
- 557 (551). **Religions of the Ancient Near East.** (2:2:0) F. Nibley
- 558 (553). **Christian Rites and Liturgy.** (2:2:0) S. Nibley
- 641, 642 (621, 622, 623). **Special Problems in L.D.S. Church History.** (2:2:0 ea.) F.S.Su. Andrus, Backman, Larson, Rich
- 645, 646 (531, 532, 533). **Historical Development of L.D.S. Doctrine and Practices.** (2:2:0 ea.) F.S.Su. Andrus, Backman, Larson
- 653 (544). **History of the Papacy.** (2:2:0) F.Su. Horsley
- 654 (632). **Reformation and Counter-Reformation.** (2:2:0) S.Su. Horsley
- 657, 658 (647, 648, 649). **Comparative Studies in American Religions.** (2:2:0 ea.) F.S.Su. Andrus, Backman, Rich, Larson
- 699 (699). **Thesis for Master's Degree.** (1-6:1-4:0) F.S.Su. Staff
- 748 (New). **Readings in L.D.S. Church History.** (1-2:1-2:0) F.S.Su. Andrus, Backman, Larson, Rich
- 755 (New). **Seminar: History of Religion.** (2:2:0) F.S.Su. Andrus, Horsley, Larson, Rich
- 758 (New). **Readings in Christian History.** (1-2:1-2:0) F.S.Su. Horsley, Nibley
- 759 (New). **Readings in the History of World Religion.** (1-2:1-2:0) F.S.Su. Nibley
- 799 (799). **Doctoral Dissertation.** (1-4:Arr.:Arr.) F.S.Su. Staff

## PHILOSOPHY

## Graduate Courses

- 580 (571, 572). **History of Ancient Philosophy.** (3:3:0) F.Su. Yarn  
Western philosophy from the 6th century B.C. to the 5th century A.D.
- 581 (572, 573). **History of Modern Philosophy.** (3:3:0) S.Su. Yarn  
Western philosophy from the 6th century to the 19th century.
- 582 (420). **Contemporary Ethics.** (2:2:0) S.Su. Madsen, Patch  
Examination of the meaning and function of moral judgments and the bases of ethical commitment.
- 583 (425). **Philosophy of Science.** (2:2:0) F.S.Su. Riddle  
Examination of the conceptual framework of modern science.
- 584 (562). **Current Trends in Philosophy of Religion.** (2:2:0) F.S.Su. Madsen

- 585 (574). **Contemporary Anglo-American Philosophy.** (2:2:0) F.S.Su. Madsen  
Men and movements in naturalism and logical positivism.
- 586 (579). **Contemporary Continental Philosophy.** (2:2:0) S.Su. Madsen  
20th century developments in existentialism, phenomenology, and Marxism.
- 587 (546). **Scholasticism, Humanism, Mysticism.** (2:2:0) F.S.Su. Horsley
- 681 (651). **Seminar: Philosophical Analysis.** (2:2:0) S.Su. Riddle
- 682 (New). **Seminar: History of Philosophy.** (2:2:0) S.Su. Yarn
- 683 (653). **Seminar: Philosophy of Religion.** (2:2:0) S.Su. Madsen
- 688 (New). **Readings in Philosophy.** (1-4:1-4:0) F.S.Su. Staff

## Human Development and Family Relationships

**Professors:** Porter (chairman, 1239 SFLC), Cannon.

**Associate Professor:** Anderson.

### Fields

Child development, family life education, marriage and family counseling

### Requirements

The Department of Human Development and Family Relationships offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before beginning work leading to one of these degrees. The admissions committee of the graduate faculty of the Department of Human Development and Family Relationships determines whether the student is properly prepared.

### Master's Degree

(For general requirements see Graduate School regulations.)

Requirements for a master's degree in human development and family relationships include a general examination at the beginning of the graduate program to establish the student's mastery of basic undergraduate courses in H.D. F.R. Normally the student meets the major and minor requirements as described under option one in the Graduate School regulations. However, the student's advisory committee may plan the program according to option two. Additional requirements include a thesis prepared under the direction of the student's advisory committee in which he interprets and reports the results of his research work; and a final examination in all aspects of human development and family relationships with the student's research thesis as the focus of attention.

### Doctor of Philosophy Degree

(For general requirements see Graduate School regulations.)

Requirements for a Doctor of Philosophy degree in human development and family relationships include an advisory evaluation examination to be administered after the completion of one year of graduate work, to be used in determining the student's qualifications to continue graduate studies and to help plan his program; a minimum of two graduate courses in each of the following areas: child development, family relationships, research methodology and statistics, and counseling theory and practice; (If a student is sufficiently qualified, a year at the Merrill-Palmer Institute of Human Development and Family Life, Detroit, Michigan, may be included in his program.); comprehensive examinations, both written and oral covering the general areas of human development and family relationships and the chosen minor fields; work in the major field plus one or two minors in related areas as determined by the student and his advisory committee; a dissertation embodying the results of original research; and an oral presentation and defense of his dissertation before a formally appointed committee.



## Graduate Courses

- 510, 511 (405, 510). Advanced Child Development.** (3:3:0 ea.) F.S. Prerequisite: H.D.F.R. 210. Kunz, Porter  
Intensive study of principles of child development and behavior as they relate to home situations, nursery schools, day-care centers, and other children's programs. Observation of individuals from infancy through adolescence.
- 570 (570, 572). Community and Professional Responsibilities to Children and Families.** (3:3:0) S. Prerequisites: H.D.F.R. 210, 361; Sociology 111. Porter  
Acquaintance with resources of the community as they relate to the welfare of children and families. A consideration of the responsibilities of professional persons working with children and families.
- 575 (575). Parent Education.** (2:2:0) S. Prerequisite: consent of instructor. Kunz, Porter  
Basic principles in organization of parent study programs. Formulation and presentation of programs for parents.
- 580 (580). Introduction to Marriage and Family Counseling.** (2:2:0) F. Prerequisite: consent of instructor. Anderson  
Theories and techniques used in marriage and family counseling. Consideration of individual and group counseling as it pertains to the family.
- 590 (590). Readings in Human Development and Family Relationships.** (1-2:1-2:0) F.S.Su. Prerequisite: consent of instructor. Anderson, Cannon, Porter  
Discussions and reports of current readings in this field. Open to students who have completed 15 hours of human development and family relationships.
- 595 (595). Special Topics in Human Development and Family Relationships.** (1-2:1-2:0) F.S.Su. Anderson, Cannon, Porter  
Individual study for qualified students majoring in human development and family relationships upon consultation with the instructor and the chairman of the department.
- 596 (596). Research Problems and Methods in Human Development and Family Relationships.** (2:2:0) F. Cannon  
Analysis of research methods used in human development and family relationships. Students have active experience in formulating a research project.
- 611 (611). Current Concepts and Research in Child Development.** (2:2:0) F. Porter
- 661 (661). Dynamics of Family Interaction...** (2:2:0) S. Prerequisite: H.D.F.R. 360. Porter
- 663 (663). Critical Problems in Family Life.** (2:2:0) F. Prerequisite: H.D.F.R. 361. Porter
- 664 (664). Current Concepts and Research in Family Relationships.** (2:2:0) S. Porter
- 666 (666). Family Problems of High School Students.** (2:2:0) Su. Staff
- 667 (667). Problems of Teaching Marriage and Family Relationships in College.** (2:2:0) Su. Staff
- 685 (685). Developmental Use of Play Experiences.** (2:2:0) S. Prerequisite: consent of instructor. Staff
- 692, 693 (692, 693). Seminar.** (2:2:0 ea.) F.S. Anderson, Cannon, Porter
- 697 (697). Independent Research.** (1-3:1-3:0) F.S.Su. Anderson, Cannon, Porter
- 699 (699). Thesis for Master's Degree.** (1-6:1-4:0) F.S.Su. Anderson, Cannon, Porter
- 780 (780). Marriage and Family Counseling.** (2:2:0) F. Prerequisites: H.D.F.R. 580; E.R.S. 625; consent of instructor. Anderson

- 781 (781). **Case Analysis in Marriage Counseling.** (2:2:0) S. Prerequisite: H.D. F.R. 780. Anderson
- 785, 786 (785, 786, 787). **Internship in Marriage Counseling.** (3:1:6 ea.) F.S. Prerequisites: H.D.F.R. 780 and 781. Anderson
- 792 (792). **Seminar in Marriage Counseling.** (2:2:0) S. Anderson
- 794 (794). **Special Topics in Human Development.** (1-2:1-2:0) F.S.Su.
- 795 (795). **Special Topics in Family Relationships.** (1-2:1-2:0) F.S.Su. Anderson, Cannon, Porter
- 797 (797). **Doctoral Candidate Research.** (2-4:2-4:0) F.S.Su. Anderson, Cannon, Porter
- 799 (799). **Dissertation for the Ph.D. Degree.** (Arr.) F.S.Su. Anderson, Cannon, Porter

## Industrial Education

**Professor:** Jeppsen.

**Assistant Professor:** McArthur (chairman, 221 SIE).

### Requirements

The basic requirements for the master's degree in industrial education, both for the plan "A" and the plan "B" type programs, are those specified by the Graduate School. In addition the department requires:

- (a) Satisfactory completion of 12 semester hours of industrial and technical education undergraduate courses prior to or concurrent with the graduate work.
- (b) Satisfactory completion of a qualifying examination given by the Industrial Education Department.
- (c) Under the plan "B" program, satisfactory completion of three or more years of successful teaching experience before graduation with the master's degree.

Through consultation with his adviser, a program of study is set up from courses in the major and related fields which shall include from 18 to 22 semester hours in the major area and from 10 to 14 semester hours in the minor area.

### Graduate Courses

- 510 (New). **History and Trends in Industrial and Technical Education.** (2:2:0) F.Su. McArthur  
Historical developments of industrial and technical education programs from their early beginnings to the present time.
- 515 (New). **Principles and Objectives of Industrial and Technical Education.** (2:2:0) F.Su. McArthur  
General philosophy, principles, and objectives of industrial arts, vocational education, and technical education programs.
- 520 (New). **Analysis in Industrial and Technical Education.** (2:2:0) F.Su. Prerequisite: I.E. 515 or approval of instructor. Jeppsen  
Basic principles involved in analyzing industrial and technical occupations for determining functional teaching content.
- 525 (New). **Course Construction in Industrial and Technical Education.** (2:2:0) S.Su. Prerequisite: I.E. 520 or approval of instructor. Jeppsen  
Preparation and use of a course of study in industrial and technical fields based upon an analysis of the occupation.
- 540 (New). **Industrial Occupational Information and Guidance.** (2:2:0) S. Su. McArthur  
Designed to provide teachers and administrators of industrial and tech-



nical education programs with information and processes needed in advising students in the industrial and technical fields of employment.

594, 595 (New). **Problems in Industrial and Technical Education.** (1-3:1-3 3-6 ea.) F.S.Su. Staff

Designed to strengthen the student in a given area of instruction provided in the industrial education program.

690, 691 (New). **Seminar in Industrial and Technical Education.** (1:1:0 ea.) Su. Staff

Latest developments and research findings in the field of industrial and technical education are reviewed.

693, 694 (New). **Reading and Conference.** (1-3:1-3:0 ea.) F.S.Su.

McArthur

699 (New). **Thesis for Master's Degree.** (Arr.) F.S.Su.

McArthur

The following courses are applicable in industrial education:

E.R.S. 540. **Statistical Methods.** (2:2:0)

E.R.S. 610. **Educational Tests and Measurements.** (2:2:0)

E.R.S. 641. **Educational Research and Thesis Writing.** (2:2:0)

## Instruction

**Professors:** D. Christensen (chairman, 153 McKay), Callahan, Clarke, Law.

**Associate Professors:** Campbell, Crnkovic, Daines, Read.

**Assistant Professors:** Babcock, L. Christensen, Flandro, McPhie, Ord, Utley, Wilcox.

### Fields

Elementary instruction, secondary instruction.

### Requirements

Graduate students majoring in the Department of Instruction must give evidence of sufficient background in public school work to enable them to successfully undertake graduate study. A major in this department is designed to provide specifically the needs of public school supervisors, directors of curriculum, individuals seeking to become master teachers at the elementary or secondary levels, and other public school personnel with particular interests in the instructional and curriculum areas.

#### Graduate Majors are Required to Take the Following Courses:

1. E.R.S. 410, Tests and Measurements for Classroom Teachers.

or

E.R.S. 610, Educational Tests and Measurements.

2. Instruction 605, Development of Instructional Materials.

3. Ed. Phil. 604, Comparative Current Educational Philosophy.

4. Instruction 631, Curriculum Development in the Elementary School.  
(Not open to students who have taken Instruction 656.)

or

Instruction 656, Curriculum Development in the Secondary School.  
(Not open to students who have taken Instruction 631.)

5. Instruction 646, Development of Instructional Methods in the Elementary School.

(Not open to students who have taken Instruction 676.)

or

Instruction 676, Development of Instructional Methods in the Secondary School.

(Not open to students who have taken Instruction 646.)

6. E.R.S. 641, Educational Research and Thesis Writing.  
(Required but does not count toward major or minor requirements.)
7. Elective courses to complete major requirements which must be approved by the department chairman.

**Graduate Minors are Required to Take the Following Courses:**

1. Instruction 631, Curriculum Development in the Elementary School.  
or  
Instruction 656, Curriculum Development in the Secondary School.
2. Instruction 646, Development of Instructional Methods in the Elementary School.  
or  
Instruction 676, Development of Instructional Methods in the Secondary School.
3. Ed. Phil. 604, Comparative Current Educational Philosophy.
4. Elective courses to complete minor requirements which must be approved by the minor department chairman.

**Graduate Courses**

- 534 (529, 534). Improved Practices in Elementary Teaching. (3:3:1) F.Su. Staff**  
Current concepts in elementary education with observation and analysis of some of the best teaching practices. Designed to meet the needs of persons seeking a refresher course, and for prospective administrative personnel in the elementary schools.
- 605 (605). Development of Instructional Materials (Audio-Visual Aids). (2:2:1) F.S.Su. Prerequisite: Instruction 406 or equivalent. Staff**  
An advanced course designed to follow Instruction 406. Principles of learning and the unique contributions of instructional materials to the curriculum. Of primary concern to the selection, integration, sources, and administration of instructional materials. Construction and use of specialized materials.
- 608 (608). Radio, Television, and Motion Picture Photography in Education. (2:2:1) Su. Staff**  
Utilization in the classroom and in public relations. Current programs, production techniques, recording of programs, and the role of mass media in learning. The development and potential of educational television.
- 612 (612). Supervision of Student Teachers. (2:2:0) Su. Staff**  
For those desiring a well-rounded view of the student teaching program with emphasis on the specific role of the cooperating teacher.
- 614, 615, 616 (614, 615, 616). Analysis of In-Service Problems. (1-3:1-3:1) F.S.Su. Staff**
- 622 (622). Advanced Study in Early Childhood Education. (2:2:0) F.Su. Staff**  
Theory and analysis of current practice in schools as related to the significance of early childhood education.
- 623 (623). Science in the Elementary School. (2:2:0) S.Su. Staff**  
Designed to give experienced teachers insight into the teaching of elementary science. Includes concentration in unit instruction and methods of presenting science concepts to children.
- 624 (624, 633). Advanced Arts and Crafts for Elementary Teachers. (2:2:1) F.Su. Prerequisite: consent of instructor. Staff**  
Exploring ideas and materials appropriate for children in the elementary school.
- 626 (626). Arts and Crafts for the Handicapped. (2:2:1) F.Su. Staff**  
Arts, crafts, and other media as they may be adapted to meet the needs of individuals with disabilities.
- 631 (631). Curriculum Development in the Elementary School. (2:2:0) F.Su. Staff**



Not open to students who have taken Instruction 656.

Principles and procedures for organizing the instructional program; patterns of curriculum organization; and techniques for change, evaluation, and stabilization of curriculum.

- 635 (635). Social Studies in the Elementary School. (2:2:0) S.Su. Staff**  
A refresher course emphasizing the scope and sequence of social studies program, its objectives in developing democratic citizenship, and the methods employed in accomplishing this aim.
- 641 (641). Language Arts in the Elementary School. (2:2:0) F.Su. Staff**  
Best practices in modern methods of instruction in listening, speaking, reading, and writing with their related skills.
- 642 (642). Reading in the Elementary School. (2:2:0) F.Su. Staff**  
An overview of the reading program; long term and daily planning problems analyzed; word attack skills reviewed; comparison of different programs discussed. Opportunities are provided students to work on their own problems in teaching reading.
- 644 (644). Arithmetic in the Elementary School. (2:2:0) S.Su. Staff**  
Concepts in arithmetic which children need, and various activities which will help students acquire correct arithmetical concepts. Special attention on the contributions of research in teaching arithmetic.
- 646 (646). Development of Instructional Methods in the Elementary School. (2:2:0) S.Su. Staff**  
Not open to students who have taken Instruction 676.  
Problems, principles, and issues of method. Assessing readiness, problems of organizing pupils for instruction, guiding and pacing, selection of materials, and evaluation.
- 656 (656). Curriculum Development in the Secondary School. (2:2:0) S.Su. Staff**  
Not open to students who have taken Instruction 631.  
Analysis of secondary curriculum development in terms of psychological and philosophical principles. Curriculum issues, trends, and current practices are examined.
- 659 (659, 661). Secondary School Curriculum Workshop. (2:2:0) F.S. Staff**  
Designed for an analysis of in-service curriculum problems.
- 663 (663). Directing Out-of-Class Activities in Secondary Schools. (2:2:0) Su. Staff**  
Examination of successful practices in scheduling and directing out-of-class activities. The effect of current scientific curriculum emphasis on out-of-class activities is explored.
- 667 (667). Teaching of Reading in the Secondary Schools. (2:2:0) Su. Staff**  
Methods of teaching reading in the secondary school and their adaptation. Role of the subject-matter specialist in the reading program.
- 670 (670). Teaching Mathematics and Science in Secondary Schools. (2:2:0) S.Su. Staff**
- 672 (672). Teaching Social Studies in Secondary Schools. (2:2:0) S.Su. Staff**  
Designed to broaden the understanding of curriculum and instruction in secondary school social studies. Relates methods and techniques to the objectives of the social studies.
- 673 (673). Teaching Speech in Secondary Schools. (2:2:0) Su. Staff**
- 676 (676). Development of Instructional Methods in the Secondary School. (2:2:0) F.Su. Staff**  
Not open to students who have taken Instruction 646.  
A general, intensive analysis of the instructional methods used at the secondary level utilizing principles developed from psychology, sociology, and philosophy.
- 682 (682). Curriculum of the Junior College. (3:3:1) F.Su. Staff**
- 684 (684). Methods of Higher Education Instruction. (3:3:1) F.S.Su. Staff**

685	(685). Directed Teaching in Higher Education. (4:5:1)	F.S.Su.	Staff
690, 691	(690, 691). Seminar. (1-2:1-2:0)	S.Su.	Staff
692	(New). Seminar in Reading. (2:2:0)	F.Su.	Staff
A critical evaluation of selected research in reading is made in terms of appropriate research procedures.			
693, 694	(693, 694). Independent Reading. (1-2:1-2:0)	F.S.Su.	Staff
696, 697	(696, 697). Independent Research. (1-2:1-2:0)	F.S.Su.	Staff
698	(698). Field Project. (1-4:Arr.:Arr.)	Arr.	Staff
699	(699). Thesis for Master's Degree. (1-6:Arr.:Arr.)		Staff

The following courses are applicable in instruction:

Library Science 571	(571). Bibliography of Sciences. (2:2:0)	
Library Science 572	(572). Bibliography of the Humanities. (2:2:0)	
Library Science 573	(573). Bibliography of the Social Sciences (2:2:0)	
Art 668	(668). Teaching Art in Secondary Schools. (1-3:Arr.:Arr.)	
Journalism 674	(574). Teaching Methods in Journalism. (2:2:0)	
Library Science 650	(650). Current Problems in the Technical Services. (2:2:0)	
Music 615	(615). Vocal Methods, Materials, and Resources. (2:2:0)	
Music 616	(616). Instrumental Methods, Materials, and Resources. (2:2:0)	

## Journalism

**Professor:** Smith.

**Assistant Professor:** Paulson (chairman, 160 SSC).

### Requirements

The Department of Journalism offers work leading to the Master of Arts degree and Master of Science degree, with programs of individual students arranged to provide concentrations in areas of special interest. Special emphasis is given to programs in research, advertising-public relations, and teaching journalism in the secondary school and junior college.

Prospective majors are advised to consult the chairman of the department concerning background for graduate study in this field. Competence demonstrated in a qualifying examination or appropriate undergraduate courses may be required of a student deficient in academic preparation or practical experience.

A student desiring to complete a graduate minor in journalism should consult the chairman of the department regarding a recommended program of study.

### Graduate Courses

561	(561, 564). Public Relations. (3:3:0)	F.Su.	Staff
Philosophy and practice of public relations in business, governmental, educational, and other institutions; study of publics, media, and methods. Case studies of public relations practice.			
563	(497). Projects in Public Relations. (1:0:3)	F.S.Su.	Staff
Field projects in public relations practice for selected business, industrial, or non-profit institutions. (Limited to majors and minors.)			
566	(566). Industrial Magazine Editing and Production. (2:2:0)	S.	Prerequisite: Journalism 211, 250. Burnett
Principles of layout and design for house magazines and business publications. Contemporary problems in content and production.			
574	(674). Teaching Methods in Journalism. (2:2:0)	Su.	Prerequisite: Journalism 321 or equivalent. Staff



Teaching methods for journalism in the secondary school and junior college. Planning and supervising school newspapers. Disseminating school publicity in the public media.

- 576 (676). **School Yearbook and Magazine Production.** (2:2:0) Su. Offered 1961-62 and alternate years. Staff  
Planning and supervising production of school yearbooks and magazines, including copy, illustration, layout, printing, binding, and business management.
- 671 (671). **Research Methods in Mass Communications.** (2:2:0) F. Burnett  
Research techniques in communication fields, including readership, readability, content analysis, and audience measurement. Introduction to thesis writing.
- 672 (672). **Mass Communication and Society.** (3:3:0) S. Burnett  
Concepts of mass communication in contemporary society; critical evaluation of responsibilities and performance of the mass media of press, radio, television, and film.
- 680 (New). **World Communication Channels.** (2:2:0) S. Burnett  
Communication media in principal areas of the world. Problems of international communications and barriers to the flow of information between peoples.
- 690 (690). **Seminar in Mass Communications.** (1:1:0) S.Su. Staff
- 691, 692 (691, 692, 693). **Special Studies in Communication.** (1-3:Arr.:Arr.) F.S.Su.  
Individual work on approved problems not leading to a thesis. (Projects must be approved before registration.)
- 694 (694). **Readings in Mass Communication.** (1-2:Arr.:Arr.) F.S.Su. Pre-Staff  
requisite: consent of instructor.
- 699 (699). **Thesis for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Staff

The following course is applicable in journalism:

Business Management 555. **Problems in Advertising.** (3:3:0)

## Languages

**Professors:** Cummings (emeritus), de Jong, Lee, Rogers, Watkins.

**Associate Professors:** Taylor (chairman, 326 McKay), Anderson, Clark, Valentine, Wilkins.

**Assistant Professor:** Brown.

### Fields

French, German, Latin, Portuguese, Spanish.

### Requirements

For full graduate standing in French, German, and Spanish, students must have completed courses 101, 102, 201, 301, 321, 322, 441, and 442 in the language chosen as a major, or have an equivalent background. No provisional admission may be granted on a lesser background. Minors in these fields must have completed courses 101, 102, 201, and 301 or have a fluent reading knowledge of the language elected. For information concerning Latin and Portuguese, consult the chairman of the department.

The major is in the language and literature of any one of the following languages: French, German, Spanish, Portuguese, and Latin. The minor may be in a second language or in another department, subject to the approval of the advisory committee.

## FRENCH

## Graduate Courses

- 511 (511). Materials and Techniques in Teaching French. (2:2:1) F.Su. Pre-requisite: French 322 or consent of instructor. Clark, Lee, Staff
- 520 (620). French Composition and Grammar. (2:2:1) F. Staff
- 521 (621). Introduction to Romance Philology. (2:2:0) F. Clark
- 522 (622). History of French Language. (2:2:0) S. Clark, Lee
- 543 (643). Introduction to French Civilization. (2:2:0) F. Brown, Clark, Lee
- 660 (631). Old French Literature. (2:2:0) S. Clark, Lee
- 665 (633). French Literature of the Renaissance. (2:2:0) F. Brown, Lee
- 674 (641). Moliere. (2:2:0) F. Clark, Lee
- 675 (635). French Literature of the 18th Century. (2:2:0) S. Clark, Lee
- 680 (651). French Drama of the 19th Century. (2:2:0) S. Brown, Lee
- 681 (653). French Novel of the 19th Century. (3:3:0) S. Brown, Lee
- 685 (637). French Literature of the 20th Century. (2:2:0) F. Clark, Lee
- 686 (652). Modern French Drama. (2:2:0) S. Brown, Clark, Lee
- 687 (654). Modern French Novel. (3:3:0) F. Brown, Clark, Lee
- 690, 691 (691, 692, 693). Directed Readings in French. (1-2:0:Arr.) F.S.Su. Staff
- 692, 693 (691, 692, 693). Seminar in Philology. (1-2:1-3:0) F.S.Su. Staff
- 694-698 (691, 692, 693). Seminar in French Literature. (1-2:1-3:0) F.S.Su. Staff
- 699 (699). Thesis for Master's Degree. (Arr.) F.S.Su. Staff

## GERMAN

## Graduate Courses

- 511 (511). Materials and Techniques in Teaching German. (2:2:1) F.S. Pre-requisite: German 322 or consent of instructor. Rogers, Watkins
- 520 (620). Advanced German Composition and Grammar. (2:2:0) S.Su. Anderson, Rogers
- 600 (661). Cultural History of Germany. (2:2:0) S.Su. Watkins
- 622 (666, 667). Gothic and Old High German. (5:5:0) F. Watkins  
Introduction to comparative Germanic philology through a study of linguistic forms in old Germanic languages, principally Gothic and Old High German.
- 624 (668). Middle High German. (3:3:0) S. Watkins
- 643 (658). German Lyric Poetry. (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
- 644 (651). The German Drama. (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson
- 645 (654). The German Novel. (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson
- 646 (656). The German Novelle. (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson
- 676 (541). Lessing. (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
- 677 (542). Schiller. (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
- 678 (543). Goethe. (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
- 685 (637). Contemporary German Literature. (2:2:0) S. Prerequisites: German, 431, 432, 441, 442, or consent of instructor. Anderson, Rogers



- 690, 691 (New). Directed Readings. (2:0:Arr.) F.S.Su. Anderson, Rogers, Watkins  
 692, 693 (691). Seminar in Philology. (2:2:0) S.Su. Watkins  
 694-698 (694). Seminar in Literature. (2:2:0) F.S.Su. Staff  
 699 (699). Thesis for Master's Degree. (Arr.) Arr. Staff

# LATIN

## Graduate Courses

- 661, 662 (651, 652). Readings in Vulgar Latin. (2:2:0) F.S. Clark, Staff  
 667, 668 (667, 668, 669). Cicero, Virgil; Latin Style and Composition. (3:3:0) F.S. Clark, Staff  
 677, 678 (677, 678, 679). Horace; the Latin Poets; the Latin Dramatists. (3:3:0) F.S. Clark, Staff  
 681, 682 (681, 682, 683). The Latin Fathers. (3:3:0) F.S. Prerequisite: consent of instructor. Nibley  
 690, 691 (New). Directed Readings. (1-2:Arr.:Arr.) F.S.Su. Clark, Staff  
 Individual study on a graduate level.  
 692, 693 (New). Seminar in Philology. (2:2:0) F.S. Clark, Staff  
 694-698 (New). Seminar in Literature. (2:2:0) F.S. Clark, Staff  
 699 (699). Thesis for Master's Degree. (Arr.) F.S.Su. Staff

# PORTUGUESE

## Graduate Courses

- 620, 621 (601, 602, 603). Portuguese Composition and Conversation. (3:3:0) F.S. de Jong  
 641 (631, 632). Introduction to Portuguese Literature. (3:3:0) F.S. (G-HA) de Jong  
 642 (633). Contemporary Portuguese Literature. (3:3:0) S. de Jong  
 650 (655, 656, 657). Introduction to Brazilian Literature. (3:3:0) F.S. de Jong  
 651 (657). Contemporary Brazilian Literature. (3:3:0) S. de Jong  
 690 (696). Directed Readings. (1-2:0:Arr.) F.S.Su. Staff  
 692 (694). Seminar in Philology. (2:2:0) F.S. de Jong  
 694 (696). Seminar in Literature. (1-2:1-2:0) F.S. Staff  
 699 (699). Thesis for Master's Degree. (1-4:1-4:0) F.S. Staff

# SPANISH

## Graduate Courses

- 511 (511). Materials and Techniques in Teaching Spanish. (2:2:0) F.Su. Prerequisite: Spanish 322 or consent of instructor. Taylor, Valentine, Wilkins  
 520 (620). Spanish Composition and Grammar. (2:2:0) F. Staff  
 521 (French 621). Introduction to Romance Philology. (2:2:0) F. Clark  
 522 (622). History of the Spanish Language. (2:2:0) S. Staff  
 553 (653). Drama in Spanish America. (2:2:0) S. Valentine, Wilkins  
 580, 581 (680, 681). 19th Century Spanish Literature. (3:3:0) F.S. Taylor, Staff  
 652 (681). Spanish American Short Story. (2:2:0) S. Valentine, Wilkins  
 654, 655 (672, 673). Spanish American Novel. (3:3:0) F.S. Valentine, Wilkins  
 656 (655). The Modernista Movement. (2:2:0) S. Valentine, Wilkins  
 657 (633). Hispanic American Essay. (2:2:0) F. Valentine, Wilkins  
 660 (621). Spanish Medieval Literature. (2:2:0) S. Taylor

670, 671	(665, 675). Golden Age Literature. (3:3:0) F.S.	Taylor, Staff
685, 686	(623, 661). 20th Century Literature. (2:2:0) F.S.	Taylor
690, 691	(New). Directed Readings. (2:0:Arr.) F.S. Individual study on a graduate level.	Staff
692	(694). Seminar in Philology. (2:2:0) F.S.Su.	Staff
694-698	(694). Seminar in Literature. (2:2:0) F.S.Su.	Staff
699	(699). Thesis for Master's Degree. (Arr.) F.S.Su.	Staff

## Library Science

**Assistant Professor:** Knight (chairman, 185 Library).

The library science program of graduate classes is organized to provide opportunity for those students who already have the necessary undergraduate work in library science, but who wish to become more proficient in their work. It will fill the needs of those who wish to renew certificates and enable them to achieve the standards set by accreditation agencies.

No provision is made for awarding a master's degree in library science under the present program, but a minor may be taken in this field.

### Graduate Courses

569	(569). Reading Guidance for Young People. (2:2:0) F.Su.	Staff
	A critical study of the reading interests and needs of young people. Problems of the reluctant and the avid reader. Extensive examination and reading of books.	
571	(571). Bibliography of the Sciences. (2:2:0) Su.	Staff
572	(572). Bibliography of the Humanities. (2:2:0) S.	Knight
573	(573). Bibliography of the Social Sciences. (2:2:0) S.	Knight
585	(590). History of Books and Libraries. (2:2:0) F.Su.	Staff
650	(650). Current Problems in the Technical Services. (2:2:0) Su.	Staff
695, 696	(655). Readings and Research in Library Science. (1-2:Arr.:Arr.) F.S.Su.	Staff

The following courses are applicable in library science:

**Instruction 605.** Development of Instructional Materials. (2:2:1)

**Speech 527.** Storytelling. (2:2:0)

## Mathematics

**Professor:** Gardner.

**Associate Professors:** Fletcher\* (chairman, 289 ESC), Robinson.

**Assistant Professors:** Fearnley, McDonald.

### Requirements

Every graduate student must complete at least two-thirds of the 18 upper division hours of mathematics required for a bachelor's degree before he can be considered as a candidate for a master's degree in mathematics. At least two semester courses must be taken in graduate mathematics.

### Master's Degree

There are three purposes for the master's degree in mathematics:

- (1) Preparation for teaching in the high school and the junior college.
- (2) Preparation for work in industry or for the government.
- (3) Preparation for a Ph.D. degree in mathematics.



All students should complete advanced calculus. A student going into industry should have numerical analysis. A student planning to obtain a Ph.D. degree should have topology and linear or abstract algebra. A student planning to teach or work in a related field to mathematics would profit by taking statistics.

A prospective graduate major should obtain departmental approval on his program before registration.

### Graduate Courses

- 541, 542 (541, 542, 543). **Advanced Calculus.** (3:3:0 ea.) F.S. Prerequisite: Math 214. Staff
- 551, 552 (551, 552, 553). **Topology.** (3:3:0 ea.) F.S. Prerequisite: Math 214. Fearnley
- 617, 618 (617, 618, 619). **Mathematical Physics.** (3:3:0 ea.) F.S. Prerequisite: Math 316; recommended prerequisite: Math 542. Staff
- 631, 632 (631, 632, 633). **Complex Analysis.** (3:3:0 ea.) Prerequisite: Math 316; recommended prerequisite: Math 542. Staff
- 641, 642 (641, 642, 643). **Functions of a Real Variable.** (3:3:0 ea.) F.S. Prerequisite: Math 214; recommended prerequisite: Math 542. Staff
- 647, 648 (647, 648, 649). **Partial Differential Equations.** (3:3:0 ea.) F.S. Not given this year. Prerequisite: Math 214; recommended prerequisite: Math 542. Staff
- 671, 672 (671, 672, 673). **Modern Algebra.** (3:3:0 ea.) F.S. Prerequisite: Math 371. Robinson
- 695 (695). **Readings in Mathematics.** (1-2:1-2:0) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S. Staff

The following courses are applicable in mathematics:

- Statistics 521, 522. **Theory of Statistics.** (3:3:0)
- Statistics 541. **Advanced Probability.** (3:3:0)

## Mechanical Engineering Science

**Professor:** Baxter.

**Associate Professor:** Simonsen (chairman, 273 ELB), Ulrich.

The areas of graduate study in mechanical engineering are: thermodynamics, heat transfer, gas dynamics, and machine design.

### Requirements

A student working toward a graduate degree in mechanical engineering science should have completed a bachelor's degree or its equivalent in mechanical engineering. A student without adequate background will be required to make up the deficiency. A course in differential equations is the minimum mathematics background acceptable.

### Graduate Courses

- 521 (520). **Advanced Thermodynamics.** (3:3:0) Arr. Prerequisites: M.E. 321; Mathematics 317. Staff
- Extended treatment of the fundamentals of thermodynamics including transient conditions, equilibrium, combustion.
- 531 (530). **Principles of Automatic Control.** (3:3:0) Arr. Prerequisites: E.E. 302; Mathematics 316; M.E. 410. Staff
- Transfer functions applied to mechanical, hydraulic, pneumatic, and electrical components, and their combination. Block diagrams, Nyquist and Routh Criteria, Bode's and Root Locus Plots, Integral and error rate compensation. Non-linear systems.

- 532 (531). Special Topics in Machine Design.** (2:2:0) Arr. Staff  
Selected topics in the behavior of engineering materials and advanced mechanics of materials as applied to the design of machine members.
- 533 (New). Stress Analysis in Machine Components.** (3:3:0) Arr. Prerequisites: C.E. 303; Mathematics 316. Staff  
Statically indeterminate structures, columns, tension and shear fields, shell analysis, curved beams and rings, buckling of columns and compression panels, torsion analysis of irregular shapes, and combined loads and stresses. Particular emphasis is given to aircraft and missile flight vehicles and ground handling equipment.
- 535 (535). Mechanical Vibrations.** (3:3:0) F. Prerequisites: C.E. 302; Mathematics 316. Staff  
Fundamentals of simple vibrating systems with applications.
- 541 (541). Advanced Heat Transmission.** (3:3:0) Arr. Prerequisite: M.E. 441. Staff  
Extension of M.E. 441 to include numerical and approximate methods of solution, transient problems, and solution of problems by analogy methods. Thermodynamic cycles, systems, and processes involved in cooling.
- 581 (581). Internal Combustion Engines.** (3:2:3) Arr. Prerequisite: M.E. 422. Staff  
Basic principles; theoretical and actual cycles; performance characteristics with experimental laboratory analysis.
- 583 (583). Principles of Turbomachinery.** (2:2:0) Arr. Prerequisites: M.E. 321, 411. Staff  
Analysis and design of all types of turbomachinery.
- 585 (585). Jet Propulsion Power Plants.** (3:3:0) Arr. Prerequisites: M.E. 412, 422. Staff  
Analysis of power plants including performance of prime movers, economics, and matching components.
- 590 (590). Mechanical Engineering Problems.** (1:0:3) F. Prerequisite: fifth year standing. Staff  
Selected problems from the field which will enable the student to integrate his fundamental knowledge in their solutions.
- 591, 592 (591, 592, 593). Seminar.** (1:1:0) F. Prerequisite: fifth year standing. Staff  
Student and faculty presentation of topics of special and current interest.
- 595, 596 (596, 597, 598). Special Problems.** (Arr.) Arr. Prerequisite: consent of department chairman. Staff
- 597 (599). Undergraduate Research.** (Arr.) Arr. Prerequisite: consent of department chairman. Staff
- 611 (610). Fluid Dynamics.** (3:3:0) Arr. Prerequisites: Mathematics 317; M.E. 412. Staff  
Steady and unsteady flow of compressible and incompressible fluids; principles of operation of fluid dynamical machinery.
- 612 (New). Gas Dynamics.** (3:Arr.:Arr.) Arr. Staff
- 621, 622 (New). Thermodynamics Theory I, II,** (3:Arr.:Arr. ea.) Arr. Staff
- 635 (635). Advanced Vibration Analysis.** (3:3:0) Arr. Prerequisite: M.E. 535. Staff  
Vibration characteristics of systems with several degrees of freedom; elastic bodies; systems with transient vibrations, and simple non-linear systems.
- 636 (New). Advanced Vibrations II.** (3:Arr.:Arr.) Arr. Staff
- 641, 642 (New). Heat Transfer Theory I, II.** (3:Arr.:Arr. ea.) Arr. Staff
- 661, 662 (New). Elasticity in Engineering.** (3:Arr.:Arr. ea.) Arr. Staff
- 697 (New). Research for Master's Degree.** (Arr.) Arr. Staff
- 699 (New). Thesis for Master's Degree.** (1-6:Arr.:Arr.) Arr. Staff



## Music

**Professors:** de Jong, Halliday, Sardoni.

**Associate Professors:** Gates (chairman, 260 C), Earl, Goodman.

**Assistant Professors:** Cannon, Cundick, Nordgren.

### Fields

Music education, music theory, musicology, applied music (minor).

### Requirements

Departmental recommendation for full graduate standing is granted to students who possess the baccalaureate degree with a major in music, have at least a "B" average in the last two years of college work, and pass the department qualifying examination. This examination presupposes the equivalent of Music 292 and Music 485. Students wishing to take advanced degrees in the fields of musicology and music theory should possess a baccalaureate degree with a major in music theory or its equivalent. Provisional standing may be recommended for a student who has not completed the above requirements. Deficiencies in training must be made up, however, before full standing will be recommended. Students who expect to receive a master's degree in music education (elementary) are not required to take the qualifying examination, but must have the baccalaureate degree in elementary education with a minor in music or its equivalent and at least one year of elementary teaching experience.

Candidates for the master's degree in music education (elementary or secondary) must have completed requirements for the appropriate General Teacher's Certificate.

All graduate students must take Music 635, **Musical Research Techniques**, preferably during the first semester of graduate work.

### Master's Degree

A minimum of 30 semester hours of credit is required for the master's degree.

Major music area (including thesis or composition) (music education, music theory, or musicology) .....	15 hours
Minor music area (applied music, music education, music theory, or musicology) .....	9 hours
Electives .....	6 hours
Total .....	30 hours

### Doctor's Degree

The doctoral program in music is flexible and is designed to meet each candidate's needs. It offers optional emphasis in the areas of music education, music theory, and musicology. The Ph.D. curriculum in music includes (1) a core program of 34 semester hours of advanced study in music which provides the framework and basic techniques for systematic learning and research in any area of music; (2) a major area of emphasis (music education, music theory, or musicology) of 36 semester hours which includes the writing of an acceptable dissertation based on original research (competence in research and writing must be demonstrated before work is started on the dissertation); and (3) a minor of 10 to 12 semester hours outside the field of music.

### Core Courses

### Semester Hours

Music 613. Basic Concepts in Music Education .....	2
Music 635. Musical Research Techniques .....	3
Music 637. History and Literature before 1750 .....	5
Music 638. History and Literature after 1750 .....	5
Music 652. History of Notation and Paleography .....	3
Music 754. History of Musical Instruments .....	3
Music 785. Historical Aspects of Music Theory .....	3

Music 791. Acoustics of Music .....	3
Psychology 606. Psychology of Music .....	3
Philosophy of Art .....	2
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Major Area

Music Education:

Music 693. Pro-Seminar in Music .....	2
Music 699. Master's Thesis .....	2
Music 794. Seminar in Music .....	6
Music 799. Dissertation .....	12
Optional courses: to be prescribed by advisory committee .....	14
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	36

Music Theory

Music 693. Pro-Seminar in Music .....	2
Music 699. Master's Thesis .....	2
Music 794. Seminar in Music .....	6
Music 799. Dissertation .....	12
Optional courses: to be prescribed by advisory committee .....	14
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	36

Musicology:

Music 693. Pro-Seminar in Music .....	2
Music 699. Master's Thesis .....	2
Music 794. Seminar in Music .....	6
Music 799. Dissertation .....	12
Optional courses: to be prescribed by advisory committee .....	14
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	36

Minor Outside the Field of Music .....	10-12
Total Hours .....	80-82

Graduate Courses

501	(489). Music in America. (3:3:0) S.Su. Prerequisites: Music 484, 485, or consent of instructor.	Wilkes
537x	(537x). Music for Elementary School Teachers (Advanced). (2:2:0) Home Study only. Prerequisites: Music 102, 237.	Staff
	Experiences in teaching and various music activities in the elementary school.	
563, 564	(563, 564). Piano Repertoire. (1:0:2 ea.) F.S.Su. Prerequisite: advanced standing as a pianist.	Fuerstner
565	(565). Piano Pedagogy. (2:2:0) S. Prerequisite: advanced standing as a pianist.	Keeler
	Methods, materials, and problems in teaching piano.	
566, 567	(566, 567). Vocal Repertoire. (1:0:2 ea.) F.S.Su. Prerequisite: advanced ability as a singer.	Staff
568	(568). Vocal Pedagogy. (2:2:0) S.Su. Prerequisite: advanced ability as a singer.	Weight
	Methods, materials, and problems in teaching voice.	
571, 572	(670, 671, 672). Counterpoint. (3:3:0 ea.) F.S.Su. Prerequisite: Music 292.	Cundick
581, 582	(680, 681, 682). Orchestration. (3:3:0 ea.) F.S.Su. Prerequisite: Music 292.	
587, 588	(587, 588, 589). Composition. (3:3:0 ea.) F.S.Su. Prerequisite: Music 292.	Gates, Fuerstner



- 601 (601). **Music in the Primary Grades.** (2:2:0) F. Prerequisites: Music 102, 237, and the equivalent of an elementary education teaching minor in music. Staff
602. (602). **Music in the Intermediate Grades.** (2:2:0) S. Prerequisites: Music 102, 237, and the equivalent of an elementary education teaching minor in music. Staff
- 603 (New). **Music in the Junior High School.** (2:2:0) S.Su. Staff  
Advanced course for graduate students in music education. The principles, practices, and programs in the junior high school.
- 605 (605). **Influence of Music on Behavior.** (3:3:0) F. Prerequisite: general psychology, sociology, or equivalent. Goodman  
The sociological and psychological implications of music education in the public schools. Required of all graduate students majoring in music education.
- 612 (612). **Music Education in Society.** (3:3:0) S. Prerequisites: Music 484, 485 or equivalent. Goodman  
The application of music education to the economic, political, business, domestic, religious, and cultural aspects of society. Required of all graduate students majoring in music education.
- 613 (613). **Basic Concepts in Music Education.** (2:2:0) F.Su. Goodman  
The philosophical and historical aspects of music education, involving principles, objectives, practices, and programs. A course designed for and required for all graduate music students.
- 615 (615). **Vocal Methods, Materials, and Resources.** (2:2:0) F.Su. Prerequisite: Music 479 or equivalent. Staff
- 616 (616). **Instrumental Methods, Materials, and Resources.** (2:2:0) S.Su. Prerequisite: Music 479 or equivalent. H. Laycock
- 620 (620). **Advanced Conducting.** (2:2:2) F. Prerequisites: Music 374, 375 or equivalent. Sardonì
- 625 (625). **Summer Music Clinic.** (2:4:4 for two weeks during clinic) Su. Staff  
May be counted as either music education or applied music.
- 635 (635). **Musical Research Techniques.** (3:3:0) F.Su. Prerequisite: graduate standing or consent of instructor. Cannon, Earl  
Required of all candidates for graduate music degrees.
- 637 (637, 638). **History and Literature of Music before 1750.** (5:5:0) F.Su. Prerequisites: Music 484, 485 or equivalent. Cannon
- 638 (638, 639). **History and Literature of Music after 1750.** (5:5:0) S.Su. Prerequisites: Music 484, 485 or equivalent. Cannon, Wilkes
- 640 (640, 641, 642). **Symphonic Music.** (3:3:0) F.Su. Offered 1962-63 and alternate years. Prerequisites: Music 484, 485, or equivalent. Wilkes
- 643 (643, 644, 645). **Chamber Music.** (3:3:0) S.Su. Offered 1962-63 and alternate years. Prerequisites: Music 484, 485, or equivalent. Wakefield
- 646 (646, 647, 648). **Operatic Music.** (3:3:0) F.Su. Offered 1961-62 and alternate years. Prerequisites: Music 484, 485, or equivalent. Staff
- 649 (649, 650, 651). **Choral Music.** (3:3:0) S.Su. Offered 1961-62 and alternate years. Prerequisites: Music 484, 485, or equivalent. Staff
- 652 (652). **History of Notation and Paleography.** (3:3:0) F.Su. Prerequisites: Music 484, 485, or equivalent. Cannon
- 656 (656). **Hymnology.** (2:2:0) S. Prerequisites: Music 484, 485, or equivalent. Weight
- 660p (660p). **Private Instruction.** (2:1:0) F.S.Su. Staff  
Fifteen lessons per semester. Special fee.
- 663 (663). **Solo Recital.** (2:0:6-10) F.S.Su. Staff  
Required of all graduate students minoring in applied music.
- 673 (676, 677). **Form and Analysis.** (3:3:0) F.Su. Prerequisites: Music 491, 572. Bradshaw

- 675 (675). Materials of Modern Music.** (3:3:0) S.Su. Prerequisite: Music 673. Gates, Bradshaw
- 686 (686). Pedagogy of Music Theory.** (3:3:0) F.Su. Prerequisite: Music 292. Nordgren
- 687, 688 (687, 688, 689). Composition.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 588 or equivalent. Gates, Fuerstner
- 693 (693, 694). Pro-Seminar in Music.** (2:2:0) S.Su. Prerequisites: Music 484, 485, 635, or equivalent and approval of advisory committee. Cannon  
Required for all candidates for graduate music degrees.
- 694 (695). Independent Readings.** (2:0:6) F.S.Su. Prerequisite: Music 693 or equivalent. Goodman
- 695 (695). Independent Readings.** (2:0:6) F.S.Su. Prerequisite: Music 693 or equivalent. Goodman
- 698 (698). Composition for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee, based on evidence of ability in composition. Staff  
To be submitted in lieu of a thesis by candidates for the master's degree majoring in composition.
- 699 (699). Thesis for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff  
Candidates for the master's degree are required to show competence in writing and research before work is begun on the thesis.
- 753 (New). Advanced Problems in Notation.** (3:3:0) S. Prerequisite: Music 652. Offered 1961-62 and alternate years. Cannon
- 754 (653). History of Musical Instruments.** (3:3:0) F. Prerequisites: Music 484, 485, or equivalent. Wakefield
- 785 (685). Historical Aspects of Music Theory.** (3:3:0) S.Su. Prerequisite: Music 292. Nordgren
- 791 (New). Acoustics of Music.** (3:3:0) S. Not offered this year. Prerequisite: Music 292. Staff
- 794 (New). Seminar in Music.** (3:3:0) F.S.Su. Prerequisites: Music 693 and approval of graduate advisory committee. Cannon
- 799 (799). Dissertation for the Doctor of Philosophy Degree.** (Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff  
Candidates for the Doctor of Philosophy degree are required to show competence in writing and research before work is begun on the dissertation.

## Physical Education for Men

## Physical Education for Women

**Professors:** Hart (chairman—men, 248 SFH), Holbrook (chairman—women, 320 WG), Hartvigsen, Kimball.

**Associate Professor:** Watts.

### Requirements

An undergraduate major or equivalent in the field and acceptance by the department chairman are necessary for admission.

The basic requirements for the master's degree in physical education are the same as the general Graduate School requirements. In addition, the college administers an oral examination to each student early in the first semester. The examination gives guidance in the selection of courses and studies leading to the master's degree. Recommended courses are set up after consultation with the college graduate chairman and the major chairman.



## Graduate Courses

- 511 (511). Administration of High School Athletics.** (2:2:0) F. Kimball  
Education outcomes of high school athletics, their relationship to the intramural program, the physical education program, the school, and the community as a whole.
- 514 (314, 604). Organization and Administration of Intramural Sports.** (2:2:0) F.S. Soffe  
History, present status, and objectives of the intramural movement procedures concerning organization, administration, and supervision of the intramural program.
- 542 (542). Physical Inspection.** (1:1:0) S. Staff  
Ways of recognizing abnormalities of body function by inspection and test procedures.
- 543 (543). Problems in Athletic Conditioning and Injuries.** (2:1:2) F.Su. Pre-requisites: Physical Education 341, 446. Staff
- 544 (New). The Techniques and Practices of the Athletic Trainer.** (1:summer workshop for one week). Staff
- 570 (570). Teaching Progression in Individual Sports.** (2:4:0) S. Prerequisite: skills classes or equivalent. Soffe, Jacobson  
Materials, methods, and teaching progression in individual sports such as archery, badminton, bowling, golf, and tennis.
- 571 (571). Teaching Progression in Team Sports—Men.** (2:1:2) F. Soffe  
Materials, methods, and teaching progression in team sports such as basketball, football, soccer, softball, speedball, volleyball, and wrestling.
- 572 (572). Teaching Progression in Team Sports.** (2:2:2) F.S. Hirst  
Materials, methods, and teaching progression in team sports such as basketball, field hockey, soccer, softball, speedball, and volleyball.
- 574 (675). Teaching Techniques in Gymnastics.** (2:1:2) F. Bangerter
- 580 (New). Precision Dance, Drill, and Marching.** (1:summer workshop for one week). Staff
- 588 (584, 586, 587). Workshop in Modern Dance.** (2:2:6) Su. Prerequisite: competency in modern dance. Holbrook, Staff  
Advanced techniques, composition, improvisation, and accompaniment.
- 600 (601, 676). Curriculum Construction and Supervision in Physical Education.** (3:3:0) S. Hart  
Curriculum construction for elementary, secondary, and college physical education with techniques of supervision in improving teacher-pupil learning situations.
- 603 (603). Planning Facilities.** (2:2:0) S. Kimball  
Basic planning for facilities for school and community physical education and recreation programs.
- 621 (621). History and Philosophy.** (3:3:0) F. Holbrook  
Beliefs and practices from early to modern times as related to physical education. Significance and implications of these in view of their effect upon modern educational thinking and cultural uses.
- 641 (641). Principles and Practices of Physical Reconditioning.** (2:2:0) F. Pre-requisite: Zoology 264. Barney
- 660 (660). Measurement and Evaluation of Physical and Health Education.** (3:3:0) S. Prerequisite: Physical Education 464 or equivalent. Hart
- 673 (673). Physical Education in the Elementary School.** (3:3:0) Su. Holbrook  
For the teacher, the principal, and the supervisor. Emphasis on objectives, interrelationships with the curriculum, and the content material used in accomplishing education results.
- 691 (602, 605). Seminar in Administration and Public Relations.** (3:3:0) S. Hartvigsen
- 692 (692). Research Methods in Physical Education.** (3:3:0) F. Hart
- 694 (694). Seminar in Readings.** (2:2:0) F.S. Staff

696	(696). Seminar in Problems. (1:1:0) S.	Staff
698	(698). Field Project, Master's Degree. (1-4:0:Arr.) F.S.Su.	Staff
699	(699). Thesis for Master's Degree. (1-6:0:Arr.) F.S.Su.	Staff

## Physics

**Professors:** Gardner (chairman, 287 ESC), Eastmond, Fletcher, W. Hales, A. Hill, Marshall.

**Associate Professors:** R. Hales, McNamara\*.

**Assistant Professors:** Barnett, Decker, Dixon, M. Hill, McDonald, Nelson.

The Physics Department offers the degrees of Master of Science, Master of Arts, and Doctor of Philosophy. The master's degree is often taken by those who intend to continue on for the Ph.D., but it also serves as a degree for many who intend to go into industrial or governmental research or into teaching. The Ph.D. is awarded for a high degree of scholarly achievement in the subject matter of physics and in research. It is not granted simply upon completion of certain routine requirements. General requirements for these degrees are outlined by the Graduate School. Following the special requirements relating to the Department of Physics. The student who expects to continue into a Ph.D. program would do well to start on it as soon as he enters the Graduate School.

### Master's Degree

The basic requirements for the master's degree in physics are the same as the general Graduate School requirements. However, the minor requirements for the master's degree may be taken either outside the department or within the department where the student may satisfy a minor in mathematical physics by taking Math 617, 618, and Physics 621.

A student seeking only a master's degree with the intent of going into research or development work would find the courses listed in item B-2 under the Ph.D. requirements to be profitable. However, he may find it to his advantage to substitute some more specialized courses or some undergraduate courses where this can be done in conformity with the regulations of the Graduate School.

A student seeking the master's degree with the intent of going into secondary teaching should consider the following program:

Education (the 24 hours required for a teaching certificate).

Physics 551, 552.

Physics 511.

One additional year's course in physics. Recommended: Physics 527, 528; Physics 561, 562; Physics 671, 672; Physics 691, 692; or if the student has not taken these in the undergraduate program, Physics 341, 342; or 431, 471.

The courses in education would fulfill the minor requirements for this degree. Persons who have already fulfilled these education requirements as undergraduates should select some other minor field such as mathematics, chemistry, or mathematical physics (see discussion above). There are many possibilities for research for master's theses which may be done with equipment on loan from the University away from campus; e.g., cosmic ray studies, meteorological studies, and astronomical studies. This should make it possible for a student to fulfill his education and physics requirements in one school year with the addition of one or two summers of study.

### Doctor of Philosophy Degree

It is expected that the student will meet the general requirements of the Graduate School for advanced degrees. The following special requirements relate to a degree in physics:



### A. Admission to Degree-Seeking Basis

Study leading to an advanced degree in physics is contingent upon admission to the Graduate School. It is expected that the student shall have satisfactorily completed the following courses or their equivalent: Physics 211, 213, 315, 316, 321, 322, 341, 342, 437, 471, and Math 232, 233, 315, 316, 541, 542. Upon approval by the student's advisory committee, some other advanced mathematics series may be substituted for Math 541 and 542. A student may remove any deficiencies by special examination or by registering for any of these courses at the outset of his graduate studies and earning "A" or "B" grades in them. Credit thus earned may not be applied towards meeting the requirements for the Ph.D. degree.

A written proficiency examination covering the general field of the undergraduate physics included in the above named courses may be required sometime during the first semester in which the student enters the Graduate School in order that it may be determined whether or not there are deficiencies to be removed. If the student is already planning to remove deficiencies by course work or special examination, he may omit the parts of the test relating to these fields and present passing grades in the courses or in the special examination in their place.

### B. Formal Course Work

1. A minimum of 52 hours in approved course work.
2. The following courses or their equivalents with grade of "A" or "B":
  - a. Mathematical Physics (Math 617, 618).
  - b. Elements of Quantum Theory (Physics 551), and The Atomic Nucleus (Physics 552).
  - c. Dynamics (Physics 621).
  - d. Mathematical Theory of Electricity and Magnetism (Physics 641, 642).
3. At least 9 hours in each of any two of the following general fields with grade of "A" or "B". One of these should be in the field in which the student plans to do his thesis. The other constitutes his minor.
  - a. **Quantum mechanics**  
Courses which will satisfy this requirement are: Physics 651, 652, 751; Chemistry 765, 766.
  - b. **Astrophysics**  
Courses which will satisfy this requirement are: Physics 527, 528, 622, 627, 628, 671.
  - c. **Thermodynamics and statistical mechanics**  
Courses which will satisfy this requirement are: Physics 631, 632, 741; Chemistry 661, 662, 761, 762.
  - d. **Nuclear physics**  
Courses which will satisfy this requirement are: Physics 655, 656, 755.
  - e. **Acoustics**  
Courses which will satisfy this requirement are: Physics 561, 562, 563, 564; E.E. 581, 584, 585, 587.
  - f. **Atomic physics and spectroscopy**  
Courses which will satisfy this requirement are: Physics 527, 528, 671, 672.
  - g. **Solid state physics**  
Courses which will satisfy this requirement are: Physics 632, 681, 682.
4. Graduate Seminar, for which the student may receive 4 hours credit.

### C. Comprehensive Examinations

Before the student is admitted to candidacy for the Ph.D. degree, he must pass a series of written and oral comprehensive examinations covering the courses in item B-2 and those courses from the two general fields selected under item B-3 which the student has completed. Normally this examination will be taken toward the end of the second year.

### D. Acceptance for Research

Before admission to candidacy, the student must be tentatively accepted as a research student by a member of the faculty of the Physics Department. The student may become acquainted with research opportunities available by attendance at seminars, lectures, discussions with faculty and other graduate students, etc.

### E. Admission to Candidacy

The student is admitted to candidacy after (1) completing two years of graduate study, (2) passing the language examinations, (3) passing the comprehensive examinations, and (4) obtaining approval of a subject for the dissertation.

### F. Dissertation

The student must present a written dissertation embodying the results of original research judged by his committee to be suitable in whole or in part for publication in a national journal.

### G. Defense of Dissertation

The student must give an oral presentation and defense of the dissertation before his committee and others designated by his committee.

### H. Research Fields Presently Available for Original Research Are:

Acoustics	Magnetic resonance
Astrophysics	Micro-wave spectroscopy
Atomic physics	Nuclear physics
Gaseous electronics	Solid state physics
High pressure, high temperature phenomena	

### Graduate Courses

- 511 (511, 512, 513). Introduction to Theoretical Physics.** (3:3:0) Su. Prerequisites: Math 315, 316. Staff  
Introduction to basic principles of physics with emphasis on their mathematical formulation. Applications principally in mechanics and electrodynamics.
- 513 (New). Special Topics in Contemporary Physics.** (1-3:1-3:0) Arr. Prerequisite: consent of instructor. Staff  
Various contemporary topics in physics are treated on sufficient demand.
- 527, 528 (527, 528, 529). Introduction to Astrophysics.** (3:3:0 ea.) F.S. Offered 1961-62 and alternate years. Staff  
The physics of stellar atmospheres.
- 551 (551, 552). Elements of Quantum Theory.** (3:3:0) F. Prerequisites: Physics 315; Math 316. R. Hales  
Basic course in modern theory of radiation and particle physics including elementary treatments of theory and relativity; quantum mechanics with spectroscopic applications; quantum statistics; solids.



- 552 (552, 553). The Atomic Nucleus.** (3:3:0) S. Prerequisite: Physics 551. R. Hales  
Basic course in nuclear physics including description of nuclear properties; scattering theory; nuclear reactions; elementary theory of the nucleus.
- 699 (699). Thesis for Master's Degree.** (1-6:Arr.:Arr.) Arr. Staff
- 561, 562 (561, 562, 563). Fundamentals of Acoustics.** (3:3:0 ea.) F.S. Offered 1962-63 and alternate years. Staff  
Vibrating systems, transmission phenomena, theory of acoustical radiators, and applications of acoustics.
- 563, 564 (563, 565, 566). Acoustical Measurements.** (2:2:0) F.S. Offered 1962-63 and alternate years. Prerequisite: completion of or concurrent registration in Physics 561 and 562. Staff  
Selected experiments in acoustics.
- 591 (394, 696, 697, 698). Techniques in Experimental Physics.** (3:2:3) S. Staff  
Modern methods in experimental physics with experience in basic shop and laboratory techniques applicable in research.
- 621 (621, 622). Dynamics.** (3:3:0) F. Prerequisite: Physics 322. McDonald
- 623 (New). Mechanics of Deformable Bodies.** (3:3:0) S. Prerequisite: Physics 621. Offered 1961-62 and alternate years. McDonald
- 625 (623). Theory of Relativity.** (3:3:0) S. Prerequisite: Physics 621. Offered 1962-63 and alternate years. Staff
- 627, 628 (627, 628, 629). Advanced Topics in Astrophysics.** (3:3:0 ea.) F.S. Offered 1962-63 and alternate years. Prerequisite: consent of instructor. McNamara
- 631 (631, 632). Advanced Thermodynamics and Kinetic Theory.** (3:3:0) F. Offered 1961-62 and alternate years. Staff
- 632 (633). Statistical Mechanics.** (3:3:0) S. Offered 1961-62 and alternate years. Staff
- 641, 642 (641, 642, 643). Mathematical Theory of Electricity and Magnetism.** (3:3:0 ea.) F.S. Prerequisite: Physics 342. Nelson
- 651, 652 (657, 658, 659). Quantum Mechanics.** (3:3:0 ea.) F.S. Offered 1962-63 and alternate years. Prerequisites: Physics 551, 621; Math 618. Gardner
- 655, 656 (651, 652, 653). Nuclear Physics.** (3:3:0 ea.) F.S. Offered 1961-62 and alternate years. Prerequisite: Physics 552. Staff
- 671 (671, 672). Atomic Spectroscopy.** (3:2:3) F. Offered 1961-62 and alternate years. Prerequisite: Physics 551 or consent of instructor. Eastmond
- 672 (673, 771). Molecular Spectroscopy.** (3:2:3) S. Offered 1961-62 and alternate years. Prerequisite: Physics 671. Eastmond
- 681, 682 (681, 682, 683). Modern Theory of the Solid State.** (3:3:0 ea.) F.S. Offered 1962-63 and alternate years. Prerequisites: Physics 431, 551. Decker
- 691, 692 (691, 692, 693). Seminar.** (1:1:0) F.S. Staff
- 697 (New). Research for Master's Degree.** (Arr.) Arr. Staff
- 699 (699). Thesis for Master's Degree.** (1-6.:Arr.:Arr.) Arr. Staff
- 711, 712, 713 (741, 755). Advanced Topics in Physics.** (1-3:1-3:0) F.S. Prerequisite: consent of instructor. Staff  
Course content varies from year to year. Special topics in theoretical and experimental physics are treated.
- 751 (757, 758, 759). Advanced Quantum Theory.** (3:3:0) F. Offered 1961-62 and alternate years. Prerequisite: Physics 652 or consent of instructor. Gardner
- 791, 792 (791, 792, 793). Seminar.** (1:1:0) F.S. Staff
- 797 (798). Research for Ph.D. Degree.** (Arr.) Arr. Staff
- 799 (799). Dissertation for Ph.D. Degree.** (Arr.) Arr. Staff

## Political Science

**Professors:** Grow, Jensen (emeritus).

**Associate Professors:** Cannon (chairman, 358 McKay), Mabey, Reeder.

**Assistant Professor:** Melville.

### Requirements

For full graduate standing in this field, a student must have completed approximately the equivalent of an undergraduate major.

A minor may be undertaken with somewhat less background, after consultation with the department.

### Graduate Courses

- 501 (New). City Planning.** (3:3:0) S. Prerequisites: Political Science 330; Sociology 423; Geography 522. Staff  
The basic problems and techniques involved in city planning.
- 502 (New). Public Works and Safety Administration.** (4:4:0) F. Prerequisites: Political Science 330; any two of the following: Sociology 380, 383, 386; Psychology 350. Staff  
The basic factors underlying the efficient operation of police, fire, and public works departments. Sociological and psychological problems involved; organization patterns; public relations; budget; etc.
- 504 (New). Budget and Fiscal Administration.** (3:3:0) F. Recommended prerequisite: Accounting 201. Staff  
The principles involved in government budget and fiscal administration. Emphasis is given at national, state, and municipal levels.
- 510 (New). International Project Administration.** (3:3:0) Recommended prerequisites: Political Science 110, 115, 330; History 120, 121. Staff  
The administration of the United States' programs abroad. Problems faced, living conditions, techniques of administration, approaches to education, etc.
- 532 (532). Personnel Administration.** (2:2:0) F. Staff  
Treatment of processes, procedures, controls, and problems of personnel and fiscal administration in executive branches of federal, state, and local governments.
- 535 (335, 635). Municipal Government and Administration.** (3:3:0) S. Grow  
Growth, development, and organization of cities; relationship of cities to other governments; problems and activities of modern cities.
- 557 (557). Government and History of Canada.** (3:3:0) S. Staff
- 560 (560). Government of Latin America.** (2:2:0) S. Staff  
Growth and political development of countries in the Latin-American area, with special reference to Argentina, Brazil, and Mexico.
- 565 (565). International Organization.** (3:3:0) F. Staff  
History and structure of international organizations, with particular emphasis on the United Nations organization and its specialized agencies.
- 571 (571). Development of American Foreign Policy.** (3:3:0) S. Staff  
Role of the United States in international affairs from colonial times to the present.
- 572 (New). Soviet Foreign Policy.** (2:2:0) S. Mabey  
Marxist-Leninist concepts of international politics and their practical application including such issues as the Communist International and "peaceful coexistence."
- 575 (375, 376). International Law.** (5:5:0) S. Reeder  
Nature and function of international law; recognition, succession, jurisdiction, rights, and immunities of states; nationality and jurisdiction over nationals.
- 580 (New). International Relations of the Far East.** (3:3:0) S. Prerequisite: Political Science 115. Staff



International relations of Asia with emphasis on the problems of imperialism, colonialism, nationalism, and Communism.

- 590 (590). **Jurisprudence.** (3:3:0) S. Staff
- 591 (391). **Anglo-American Legal Institutions.** (3:3:0) S. Staff  
Origins and development of common law and equity, the writ system, court systems, basic legal terms, the anatomy of a law suit.  
Problem approach to ancient and modern legal philosophies, with special attention given the nature of justice and the relation of law to morality.
- 593 (593). **Administrative Law of the U.S.** (3:3:0) F. Reeder  
Legal setting for administrative bodies and judicial control of administrative action. Cases in administrative law read and discussed.
- 595 (306, 595). **American Constitutional History.** (3:3:0) F. Prerequisite: Political Science 110. Jensen  
History and development of the Constitution; study of its fundamental provisions, their interpretation and application in the functioning of the American system of government.
- 601 (601). **Modern Political Philosophy.** (2:2:0) S. Staff
- 605 (605). **Roots of American Democracy.** (2:2:0) F. Staff
- 610 (610). **American Political Problems.** (2:2:0) F. Grow
- 630 (630). **Comparative Public Administration.** (3:3:0) S. Grow
- 650 (650). **Democratic Governments.** (2:2:0) F. Staff
- 651 (651). **Totalitarian Governments.** (2:2:0) S. Mabey
- 665 (665). **International Organization in the 20th Century.** (2:2:0) S. Staff
- 670 (670). **International Relations in the 20th Century.** (2:2:0) S. Staff
- 675 (675). **Modern International Law.** (2:2:0) S. Reeder
- 690 (690). **Supreme Court of the United States.** (2:2:0) F. Staff
- 696 (696). **Constitutional Law in the 20th Century.** (2:2:0) F. Reeder
- 698 (698). **Directed Readings in Political Science.** (1-2:0:1-2) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (2-6:0:2-6) F.S. Staff

The following courses are applicable in political science:

- Geography 552 (522). **Urban Geography.** (2:2:0)
- Economics 575 (575). **Government Finance.** (3:3:0)
- Economics 576 (576). **Government and Business.** (3:3:0)

## Psychology

**Professors:** Howell (chairman, 1230 SFLC), Allen, Robinson.

**Associate Professors:** Hardy\*, Taylor.

The Department of Psychology offers the following graduate programs leading to advanced degrees: master's degree in general psychology; master's degree for school psychologists, given in collaboration with the Department of Educational Research and Services; Ph.D. in clinical psychology; and a Ph.D. in general psychology.

Prospective graduate students are expected to acquaint themselves with all general regulations for advanced degrees as outlined by the Graduate School. Admittance to graduate work in psychology requires completion of the core courses for the undergraduate major (general psychology, cognitive processes, motivation, elementary statistics, experimental psychology, abilities, and one seminar) or their equivalent. Before a student is admitted to degree-seeking status he must demonstrate his competence for graduate work by satisfactory performance on a battery of written examinations to be prescribed by the department. All graduate students are required to complete satisfactorily Psychology 670, Advanced Statistics.

### Master's Degree

Requirements include: (1) completion of the required number of hours as stipulated by the general University requirements, including the specific courses required by the department for the school psychologist program, or those prescribed by the student's advisory committee in the general field; (2) a thesis which reports research done under the direction of a committee composed of representatives from the major and minor fields; (3) satisfactory performance in final oral examination on thesis and subject matter.

### Doctor of Philosophy Degree with a Major in Clinical Psychology

Requirements for the degree of Doctor of Philosophy include: (1) completion of the required courses listed below (It is expected that the prerequisite courses will be taken without credit where this is necessary to make up deficiencies.); (2) a minimum of 14 hours in a minor field in a subject related to and supporting general knowledge in psychology, plus sufficient other hours in psychology (including required courses) or related fields to equal at least 74 hours; (3) comprehensive examinations covering major and minor fields. No student is admitted to these comprehensive examinations until he has demonstrated a general breadth of basic knowledge during the first two years of graduate work. Completion of these examinations is necessary before a person can be formally admitted to candidacy for a degree in clinical psychology. (The examination in the major area need not be taken at the same time as that in the minor area); (4) a dissertation embodying the results of original research of professional caliber, done under the supervision of the advisory committee; (5) completion of one year of internship in a hospital or institution approved by the department.

### Courses Required for a Doctor of Philosophy Degree with a Major in Clinical Psychology

- I. General Psychology (18 hours)
  - A. 560. Psychology of Learning... (3:3:0)
  - B. 585. Advanced Physiological Psychology. (3:3:0)
  - C. 610. Systematic Psychology I: History and Contemporary Thought. (4:4:0)
  - D. 611. Systematic Psychology II: Psychological Theory. (4:4:0)
  - E. 720. Seminar: Clinical Problems of Genetic Psychology. (1:1:0)
  - F. 552. (Soc-Psych) Personality: Culture and Society. (3:3:0)
- II. Psychodynamics of Behavior (10 hours)
  - A. 540. Abnormal Psychology. (3:3:2)
  - B. 550. Psychology of Personality. (3:3:0)
  - C. 651. Problems in Psychopathology. (2:2:0)
  - D. 675. Experimental Psychodynamics. (2:1:4)
- III. Diagnostic Methods (12 hours) Prerequisite: Psychology 378.
  - A. 640. Individual Test Practice. (5:1:8)
  - B. 740. Introduction to Projective Techniques. (2:2:0)
  - C. 741. Rorschach Test Practice. (3:1:8)
  - D. 743. Practicum: Diagnostic Testing. (2:0:6)
- IV. Psychotherapy (12 hours) Prerequisite: Psychology 540.
  - A. 680. Introduction to Psychotherapy. (3:3:0)
  - B. 780. Individual Psychotherapy: Practicum. (3:1:8)
  - C. 781. Individual Psychotherapy: Practicum. (3:1:8)
  - D. 782. Group Therapy: Theory and Practice. (3:1:8)
  - or
  783. Play Therapy: Theory and Practice. (3:3:3)



### V. Research Methods (9 hours)

- A. 574. Advanced Experimental Psychology. (2:1:5)
- B. 670. Advanced Statistics I. (3:3:0)
- C. 671. Advanced Statistics II. (3:3:0)
- D. 690. Seminar: Research Problems. (1:1:0)
- E. 799. Dissertation. (Arr.)

### Doctor of Philosophy Degree with a Major in General Psychology

A program for the Ph.D. in general psychology with some concentration in the principal branches of the field is also offered by the Psychology Department. The purpose of this program is to furnish advanced training to students who are primarily interested in research, university teaching, and specialized applications of psychology in areas other than the clinical field.

A candidate for this degree will choose a field of concentration from not more than two of the following branches: experimental psychology, physiological and comparative psychology, statistical analysis, psychological measurements, individual differences, learning social psychology, personality, and developmental psychology.

### Courses Required for a Doctor of Philosophy Degree with a Major in General Psychology

#### I. General Psychology (17 hours)

- A. 552. (Soc-Psych) Personality: Cuulture and Society. (3:3:0)
- B. 560. Psychology of Learning. (3:3:0)
- C. 585. Physiological Psychology. (3:3:0)
- D. 610. Systematic Psychology I: History and Contemporary Thought. (4:4:0)
- E. 611. Systematic Psychology II: Psychological Theory. (4:4:0)

#### II. Psychodynamics of Behavior (10 hours)

- A. 540. Abnormal Psychology. (3:3:2)
- B. 550. Psychology of Personality. (3:3:0)
- C. 555. (Soc-Psych) Group Dynamics. (2:2:0)
- D. 675. Experimental Psychodynamics. (2:1:4)

#### III. Research Methods (9 hours)

- A. 574. Advanced Experimental Psychology. (2:1:5)
- B. 670. Advanced Statistics I. (3:3:0)
- C. 671. Advanced Statistics II. (3:3:0)
- D. 690. Seminar: Research Problems. (1:1:0)
- E. 799. Dissertation. (Arr.)

#### IV. Approximately 30 additional hours chosen by the chairman of the student's advisory committee befitting the particular specialization elected by the student. This list must be approved by the department staff upon the recommendation of the chairman of the committee.

### Graduate Courses

- 510 (510). **The Psychology of Aesthetics.** (2:2:0) S. Prerequisite: Psychology 111. Taylor  
The arts of perceptual stimuli; the nature of artistic creativity; psychological symbolism expressed in the arts; the artist as a person.
- 540 (440, 540). **Abnormal Psychology.** (3:3:2) S.Su. Prerequisites: Psychology 111 and consent of instructor. Allen

Dynamics of maladjustment; implications for normal behavior; review of major and minor psychological disorders; modern therapeutic procedures; field work at Utah State Hospital.

- 550 (550). **Psychology of Personality.** (3:3:0) F.Su. Prerequisites: Psychology 111 and five additional hours in psychology. Allen, Taylor  
Major theories of personality; problems of traits, types, and organization; interaction of biological psychological, and cultural determinants; measurement of personality.
- 552 (552). **(Soc-Psych) Personality: Culture and Society.** (3:3:0) S. Prerequisite: 12 hours of psychology or sociology and anthropology. Hardy  
May be used for credit either in anthropology, psychology, or sociology, but not in more than one. The role of culture and society in the formation and functioning of personality.
- 555 (55). **(Soc-Psych) Group Dynamics.** (2:2:0) F. Prerequisite: Sociology-Psychology 350. Hardy  
May be used for credit either in psychology or sociology, but not in both. Research and theories in group dynamics.
- 560 (560). **Psychology of Learning.** (3:3:0) S. Prerequisites: Psychology 111 and 5 additional hours in psychology. Allen, Taylor  
Current theories of learning; persistent problems; representative experiments; types of learning; principles of effective learning; implications for clinical, educational, and social fields.
- 574 (574). **Advanced Experimental Psychology.** (2:1:5) S. Prerequisites: Psychology 111, 374, or equivalent. Allen  
Principles of instrumentation; varieties of experimental designs; nature of experimental controls. Gives experience in planning, conducting, and reporting original exploratory experiments.
- 580 (580). **Comparative Psychology.** (3:3:0) F. Prerequisite: Psychology 111. Staff  
Survey of methods and results of research on animal learning, innate behavior, motivation, individual differences, social behavior, abnormal behavior; correlation of structure with function.
- 585 (585). **Advanced Physiological Psychology.** (3:3:0) S. Prerequisite: Psychology 111. Staff  
Critical study of physiological processes and psychological functions; physiological mechanisms underlying behavioral processes, including sensation, emotion, sleep and activity, motivation, and learning.
- 598 (598). **Independent Research.** (1-3:0:2-6) F.S. Staff
- 606 (New). **Psychology of Music.** (3:3:0) S. Prerequisites: Psychology 111 and Physics 111 or equivalent. Taylor  
Designed for and required of graduate students majoring in music education. Critical examination of psychophysical functions in music; measurement of auditory thresholds; problems of absolute pitch; time judgments as related to music; nature and measurements of sensory-motor skills; measurement of musical aptitude; personality and emotional factors as related to musical production and appreciation; recent applications of music in therapy; musical creativity as a psychological problem; representative research problems, methods, and results.
- 610 (610, 612). **Systematic Psychology I: History and Contemporary Thought.** (4:4:0) F. Prerequisite: undergraduate core courses. Howell
- 611 (611, 612). **Systematic Psychology II: Psychological Theory.** (4:4:0) S. Prerequisite: Psychology 610. Taylor
- 626 (626). **Mental Deficiency.** (2:2:0) F. Prerequisite: Psychology 378 or equivalent. Allen
- 627 (627). **Gifted Children.** (1:1:0) S. Prerequisite: Psychology 378. Staff
- 628 (628). **Psychology of the Physically Handicapped.** (2:2:0) F. Prerequisite: Psychology 378. Taylor
- 640 (640, 641). **Individual Test Practice.** (5:1:8) S. Prerequisite: Psychology 378. Howell, Taylor



- 642 (642). **Special Clinical Testing.** (2:0:6) S. Prerequisite: Psychology 640.  
Howell, Taylor
- 651 (651). **Problems in Psychopathology.** (2:2:0) S. Prerequisites: Psychology  
540 and consent of instructor. Howell
- 655 (655). **Psychosomatic Problems.** (2:2:0) F. Prerequisites: Psychology 540  
and consent of instructor. Trunnell
- 670 (670, 671). **Advanced Statistics I.** (3:3:0) F. Prerequisite: Psychology 370.  
White
- 671 (671, 672). **Advanced Statistics II.** (3:3:0) S. Prerequisite: Psychology 670.  
White
- 675 (675). **Experimental Psychodynamics.** (2:1:4) F. Prerequisites: under-  
graduate core courses and consent of instructor. Staff
- 680 (680). **Introduction to Psychotherapy.** (3:3:0) S. Prerequisites: undergrad-  
uate core courses and consent of instructor. Robinson
- 690 (690). **Seminar: Research Problems.** (1:1:0) F. Staff
- 695 (695). **Independent Readings.** (1-2:Arr.:Arr.) F.S.Su. Staff
- 699 (699). **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff
- 720 (720). **Seminar: Clinical Problems of Genetic Psychology.** (1:1:0) S. Pre-  
requisite: consent of instructor. Howell, Taylor
- 740 (740). **Introduction to Projective Techniques.** (2:2:0) F. Prerequisites:  
Psychology 550 and 640. Taylor
- 741 (741). **Rorschach Test Practice.** (3:1:8) S. Prerequisite: Psychology 740.  
Howell, Robinson, Taylor
- 743 (743). **Practicum: Diagnostic Testing.** (2:0:6) S. Prerequisite: Psychology  
741. Howell
- 747 (747). **Internship in Clinical Testing.** (2-4:1:5-11) F.S.Su. Prerequisite:  
Psychology 743. Howell
- 748 (748). **Internship in Clinical Testing.** (2-4:1:5-11) F.S.Su. Prerequisite:  
Psychology 747. Howell  
Continuation of Psychology 747.
- 750 (750). **Seminar: Personality.** (1:1:0) F. Prerequisite: consent of instructor.  
Staff
- 760 (760). **Seminar: Learning.** (1:1:0) S. Prerequisite: consent of instructor.  
Staff
- 780 (780). **Individual Psychotherapy: Practicum.** (3:1:8) F.Su. Prerequisite:  
Psychology 680. Staff
- 781 (781). **Individual Psychotherapy: Practicum.** (3:1:8) S. Staff  
Continuation of Psychology 780.
- 782 (782). **Group Therapy: Theory and Practice.** (3:1:8) S. Prerequisite: Psy-  
chology 680. Staff
- 783 (783). **Play Therapy: Theory and Practice.** (3:3:3) S. Prerequisites: under-  
graduate core courses and consent of instructor. Staff
- 792 (New). **Seminar: Social Psychology.** (2:2:0) S. Prerequisite: consent of  
instructor, Sociology 350, or Psychology 350. Staff
- 797, 798 (New). **Independent Research.** (1-4:0:3-12) F.S. Prerequisite: con-  
sent of instructor. Staff
- 799 (799). **Ph.D. Dissertation.** (Arr.) F.S.Su. Staff

## Recreation

Professors: I. Heaton (chairman, 226 SFH), Hart, Hartvigsen.

### Requirements

An undergraduate major or equivalent in the field and acceptance by the department chairman is necessary for admission.

The master's degree in recreation may be completed by following either the A or B plan. If the student's advisory committee approves the B plan the candidate will take a preliminary and final oral examination, a comprehensive written examination, and 32 hours of course work approved by his advisory committee.

Upon approval of his advisory committee, a student may elect option II in filling the minor requirement. A maximum of 12 credit hours of related courses which are approved by the advisory committee may be applied toward the degree.

### Graduate Courses

502	(502). Camping Education. (2:2:0) Su.	Staff
503	(503). Administration of School and Community Camps. (2:2:0) S.	I. Heaton
505	(331, 505). Administration of Community Recreation. (3:3:0) S.Su.	I. Heaton
579	(579). Directed Leadership in Recreation. (2-6:1:6-18) F.S.Su. Prerequisite: consent of department chairman.	I. Heaton
583	(683). Workshop in Recreational Dance. (2:2:0) S.Su.	A. Heaton
607	(607). The Conduct of Playgrounds. (2:2:0) S.Su.	A. Heaton
609	(609). The Recreation Program. (2:2:0) F.Su.	I. Heaton
694	(694). Seminar in Readings. (2:2:0) F.S.Su.	I. Heaton
696	(696). Seminar in Problems in Recreation. (1:1:0) S.	I. Heaton
698	(698). Field Project. (1-3:2-5:0) F.S.Su.	I. Heaton
699	(699). Thesis for Master's Degree. (1-6:1-5:0) F.S.Su.	I. Heaton

The following courses are applicable in recreation:

Art 665	(665). Advanced Ceramics. (1-3:Arr.:Arr.)
Art 666	(666). Advanced Metal and Jewelry Design. (1-3:Arr.:Arr.)
Instruction 605	(605). Development of Instructional Materials (Audio-Visual Aids). (2:2:1)
Instruction 624	(624). Advanced Arts and Crafts for Elementary Teachers. (2:2:1)
Instruction 626	(626). Arts and Crafts for the Handicapped. (2:2:1)

The following courses are applicable in recreation:

Dramatic Arts 571	(570, 571). Creative Dramatics. (2:2:1)
Dramatis Arts 572	(572). Children's Theatre. (2:2:1)
Physical Education 514	(514). Organization and Administration of Intramural Sports. (2:2:0)
Physical Education 570	(570). Teaching Progression in Individual Sports. (2:4:0)
Physical Education 571	(571). Teaching Progression in Team Sports—Men. (2:1:2)
Political Science 532	(532). Personnel Administration. (2:2:0)
Political Science 535	(535). Municipal Government and Administration. (3:3:0)
Psychology 540	(540, 440). Abnormal Psychology. (3:3:2)
Psychology 555	(555). (Soc-Psych) Group Dynamics. (2:2:0)
Sociology 551	(551). Sociology of Recreation. (2:2:0)
Sociology 555	(555). (Soc-Psych) Group Dynamics. (2:2:0)
Speech 527	(527). Storytelling. (2:2:0)
Instruction 663	(663). Directing Out-of-class Activities in the Secondary Schools. (2:2:0)
Physical Education 603	(603). Planning Facilities. (2:2:0)



- Physical Education 691 (691). Seminar in Administration and Public Relations. (3:3:0)
- Physical Education 692 (692). Research Methods in Physical Education. (3:3:0)
- Physical Education 694 (694). Seminar in Readings. (2:2:0)
- Physical Education 696 (696). Seminar in Problems. (1:1:0)
- Psychology 628 (628). Psychology of the Physically Handicapped. (2:2:0)
- Sociology 686 (686). Problems in Race Relations. (2:2:0)

## Religious Education

**Professors:** Belnap (chairman, 120 S), Berrett.

### Requirements

The Department of Religious Education offers training leading to the Master of Religious Education degree. A student must have adequate preparation on the undergraduate level before beginning work leading to this degree. The admissions committee of the graduate faculty of religion will determine if the student is properly prepared.

Each graduate student must fill all general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility of knowing and fulfilling these regulations and requirements rests with the student.**

A statement of detailed requirements and procedures of the graduate program in religion may be obtained upon request from the chairman of graduate studies in religion.

### Master's Degree

Before a student is admitted on a degree-seeking basis, the admissions committee of the graduate faculty of religion will carefully study and evaluate his preparation and fitness for a graduate program. After acceptance, the student is assigned to an advisory committee. An oral examination on thesis and course work must be passed successfully.

### Course Work

The student must complete 30 semester hours of graduate credit, not including thesis credit. Majors in the field of religious education must fill the following requirements:

**One hour from the following courses:**

Religious Education 572 (1), 573 (1), (Theology), or Theology 530 (2)

**The following course:**

Religious Education 670 (2), (Survey of Religious Education)

**Two hours from the following courses:**

Religious Education 570 (2), 571 (2), 673 (2), 674 (2), (methods)  
Religious Education 671 (2), 672 (2), 675 (2), 676 (2), (curriculum)

**Six hours from the following courses:**

Religious Education 661 (2), 662 (2), 663 (2), 664 (2) (subject matter). Competence in the subject matter of these courses is required. The candidate must satisfy the department that he is prepared before he may register for any of these courses.

**One course from the following:**

E.R.S. 620 (3), (Introduction to Counseling)  
History and Philosophy of Religion 681 (2), (Philosophical Analysis)  
History and Philosophy of Religion 683 (2), (Philosophy of Religion)

The student may obtain 10 credit hours in the minor field of his choice if he is a certified teacher. If he is not certified, the minor must be taken in education. The remaining hours of credit required may be taken to suit the needs of the particular student.

### Minor in Religious Education

The master's candidate for a minor in the field of religious education must fill the following requirements:

#### 1. Advisory Committee Representative

The student will be assigned a member of the faculty of the College of Religious Instruction to represent his minor field.

#### 2. Course Work

The student must complete 10 hours of course work as follows:

##### Four hours from the following courses:

Religious Education 570 (2), 571 (2), 572 (1), 573 (1), 574 (1), 671 (2), 672 (2), 673 (2), 674 (2), 676 (2).

##### Two of the following courses:

Religious Education 661 (2), 662 (2), 663 (2), 664 (2).

##### Two hours from the following courses:

Religious Education 670 (2), E.R.S. 620 (3), History and Philosophy of Religion 681 (2), 683 (2).

### Graduate Courses

- 570, 571 603, 604). Methods of Teaching Religion in the Secondary Schools. (2:5:0 ea.) Su. Not offered 1961. Berrett, Staff
- 572, 573, 574 (534, 535, 536). Lectures in Theology. (1:4:0 ea.) Not offered 1961. Berrett, Staff
- 661 (678 in 60-61; 621 in 59-60). Problems of Old Testament Teaching. (2:2:0) F. (2:5:0) Su. Staff
- 662 (678 in 60-61; 621 in 59-60). Problems of New Testament Teaching. (2:2:0) S. (2:5:0) Su. Turner
- 663 (679 in 60-61; 622 in 59-60). Problems of L.D.S. Church History Teaching. (2:2:0) S. (2:5:0) Su. Clark
- 664 (679 in 60-61; 622 in 59-60). Problems of Book of Mormon Teaching. (2:2:0) F. (2:5:0) Su. Ludlow
- 670 (601). Survey of Religious Education. (2:2:0) F.S. (2:5:0) Su. Belnap
- 671, 672 (605, 606). Curriculum of Religion in Secondary Schools. (2:5:0 ea.) Su. Not offered 1961. Berrett, Staff
- 673, 674 (607, 608). Methods of Teaching Religion in College. (2:5:0 ea.) Not offered this year. Berrett, Staff
- 675, 676 (609, 610). Teaching Religion in Colleges. (2:5:0 ea.) Su. Not offered 1961. Berrett, Staff
- 677 (611). Problems of Teaching Religion. (1:3:0) Su. Not offered 1961. Berrett, Staff
- 680 (New). Philosophic Problems and Religious Instruction. (1:3:0) Su. Madsen, Riddle, Yarn
- 699 (New). Thesis for Master's Degree. (1-6:1-6:0) F.S.Su. Staff

The following courses are applicable in religious education:

Theology 530 (New). L.D.S. Theology. (2:2:0)

E.R.S. 620 (620). Introduction to Counseling Theory and Practice. (3:3:0)

History and Philosophy of Religion 681 (651). Seminar: Philosophical Analysis. (2:2:0)



**History and Philosophy of Religion 683 (653). Seminar: Philosophy of Religion.**  
(2:2:0)

## **Sociology and Anthropology**

**Professors:** Symons (chairman, 1216A SFLC), Ballif, Bradford, Smith.

**Associate Professors:** Christiansen, Dyer, Empey, Larsen\*, Vernon.

**Assistant Professor:** Peterson.

### **Requirements**

The Department of Sociology and Anthropology offers training for the master's degree and the Doctor of Philosophy degree. It is expected that graduate students will acquaint themselves with all the general regulations for advanced degrees as outlined by the Graduate School.

### **Master's Degree**

The requirements for the master's degree in sociology include, of course, the general requirements of the Graduate School.

Admission to the master's degree program requires a minimum of 15 semester hours in sociology or its equivalent, including introductory sociology, sociological theory, methods of research, and statistics, and the passing of a written **screening examination** involving the following fields: sociological theory, statistics, research methods, and social organization-disorganization. Screening examinations must be taken during the sixth week of the first semester of residence.

### **Doctor of Philosophy Degree**

Students intending to enter the doctoral program in sociology should obtain from the department chairman a complete statement of rules and procedures. In addition to the general requirements of the Graduate School, a student working toward a doctorate in sociology must fulfill the following specific requirements:

**1. Requirements for Admission.** For admission to the doctoral program in sociology, the student must furnish evidence of having received a master's degree or its equivalent in sociology from an accredited university. In addition, the student must pass **screening examinations** in the following areas: sociological theory, statistics, research methods, and social disorganization. Screening examinations must be taken during the sixth week of the first semester of residence. The department may then prescribe remedial work or other requirements as a condition for admission. The student must complete such work with a grade of "B" or better.

**2. Student's Advisory Committee.** The members of the advisory committee are nominated by the student in consultation with the department chairman and with the approval of the dean of the Graduate School. Four men from the department plus one from outside the department comprise the advisory committee. If the student decides to have one minor outside the department, the fifth member must be from the department. If the student has both minors within the department, the fifth member is selected from a department decided upon by the other four committee members. The chairman of the committee must be a representative of the department and must be competent in the field in which the dissertation is to be written.

**3. Major and Minor Fields.** The student must have two major fields, one of which must be research methods. A major field is a field of study in which the student specializes both in respect to teaching and research. It is presumably the field in which the dissertation is to be written and upon which the professional career is to be based.

The student must have two minor fields, one of which may be selected from another department in lieu of one of the minor fields in sociology. A

minor field is construed as a field of study in which the student may teach and/or conduct research creditably. It is not the substantive field, however, in which his competence is most highly developed.

The major fields must be selected from the following: research methods, social organization-disorganization, sociological theory, marriage and family, and social psychology.

A student may elect to have a minor in a field not listed above. To do so he must submit a proposed program of study to his advisory committee at least 12 months in advance of the comprehensive examinations. This committee, with the approval of the members of the department, may authorize an alternate minor field in sociology.

**4. Comprehensive Examinations.** The student must pass comprehensive examinations after the completion of prescribed course work and at least one year prior to the granting of the degree. Unless a minor is selected in another department, the examinations are in four of the above fields of sociology, two of which must be (a) sociological theory and (b) research methods.

#### Requirements for a Minor in Sociology

A student working toward a master's degree completes the departmental requirements for a minor in sociology by satisfactorily completing Sociology 604 plus graduate semester hours in areas related to his major specialization in his field as approved by his advisory committee, a member of which is from the Department of Sociology and Anthropology.

A student working toward the doctoral degree with a major in another department and with a minor in sociology takes a preliminary screening examination, after which a committee member from the Department of Sociology and Anthropology, with the approval of the other members of the department, outlines a program in accordance with the needs of the student.

#### Graduate Courses

- 512 (512). Sociology of Education.** (2:2:0) S. Smith  
Analyzes principles of sociology of education and their implication for theory and practice of school administration, curricula, and methods of instruction.
- 516 (516). Sociology of Religion.** (2:2:0) F. Ballif, Empey, Smith, Vernon  
Analyzes influences of social factors in development of various religious systems.
- 524 (524). Advanced Social Statistics.** (3:3:0) F. Prerequisite: Sociology 111. Staff  
Advanced course designed for those who intend to do research or continue in graduate work.
- 542 (542). Social Movements.** (2:2:0) S. Ballif, Payne, Symons  
Discusses social aspects of various movements from Adam Smith to John Dewey with special emphasis on social reform movements in the United States.
- 543 (543). Social Legislation.** (2:2:0) S. Ballif  
Basic problems and techniques of social legislation. Analyzes various systems now in operation.
- 551 (551). Sociology of Recreation.** (2:2:0) S.Su. Ballif, Payne  
Treats relations of recreational interests to growth, group behavior, and social maladjustments. Emphasizes basic theories of recreative activities.
- 552 (552). (Soc-Psych) Personality: Culture and Society.** (3:3:0) F. Prerequisite: Sociology 111 or Psychology 111. Christiansen, Dyer, Hardy
- 555 (555). (Soc-Psych) Group Dynamics.** (2:2:0) S. Prerequisite: Sociology 350. Dyer, Hardy  
Analyzes research and theories of group dynamics.
- 560 (560). Family and Kinship.** (2:2:0) S. Bradford, Empey  
Emphasizes the family in several different societies and problems created by various family systems.



- 570 (570). Class, Status, and Power.** (2:2:0) F. Prerequisite: Sociology 111.  
Empey, Peterson  
Analyzes the major status and class systems in various societies. Also discusses power relations in such systems.
- 591 (583). Seminar in Crime Causation and Treatment.** (2:2:0) S. Prerequisites: Sociology 111, 380.  
Empey, Smith, Symons  
Considers the major causes of crime and analyzes prevalent theory and techniques of treatment of criminals.
- 595 (536). Directed Readings.** (1-3:0:2-6) F.S.Su. Staff  
Readings in special areas.
- 596 (New). Directed Readings.** (1-3:0:2-6) F.S.Su. Staff  
Readings in special areas.
- 597 (520, 521). Advanced Research Methods.** (3:3:0) S. Prerequisite: Sociology 497. Staff  
Analyzes methods used in investigation of sociological data. Field projects give the student actual experience in research.
- 604 (New). Seminar in Sociological Theory.** (2:2:0) S.Su. Prerequisites: Sociology 404 and 405. Bradford, Dyer  
An advanced course in sociological theory.
- 670 (New). Social Structure of the Mental Hospital.** (3:1:4) F. Prerequisite: consent of instructor. Peterson, Vernon  
In cooperation with the Utah State Hospital, students participate in an analysis of the relationship between social structure of the hospital and patient behavior.
- 686 (686). Problems in Race Relations.** (2:2:0) F. Ballif, Larsen  
Considers significant problems of a specialized nature in the field of race relations.
- 699 (699). Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff
- 701 (701). Advanced Statistical Methods.** (2:2:0) S. Prerequisites: Sociology 320, 524. Christiansen, Peterson  
Consideration of advanced statistical techniques such as scalogram analysis, factor analysis, and latent structure analysis.
- 791 (New). Seminar: Social Organization.** (2:2:0) F. Prerequisites: Sociology 111, 405. Staff  
Comprehensive examination of major theories of organization with emphasis upon theory construction.
- 792 (New). Seminar: Social Psychology.** (2:2:0) S. Prerequisites: consent of instructor; Sociology 350. Staff  
Designed to give advanced work to graduate students. Gives special emphasis to group processes and socialization.
- 796 (796). Special Research Problems.** (1-3:0:2-6) F.S.Su. Staff
- 797 (798). Special Research Problems.** (1-3:0:2-6) F.S.Su. Staff
- 799 (New). Dissertation for Ph.D.** (Arr.) F.S.Su. Staff

## Statistics

**Associate Professors:** Nielson (chairman, 348 JK), Gardner.

A graduate degree is not currently offered in statistics, but a graduate minor may be taken in this field.

### Graduate Courses

- 521, 522 (Math 521, 522, 523). Theory of Statistics.** (3:3:0 ea.) F.S. Prerequisite: Math 214 or equivalent. Staff
- 531 (Ag. Econ. 531). Experimental Design.** (2:2:0) S. Prerequisite: Statistics 431 or 521. Staff
- 532 (Econ. 532). Advanced Business Statistics.** (2:2:0) F. Nielson

- 541 (New). **Advanced Probability.** (2:2:0) S. Prerequisites: Math 214 and Statistics 521 or equivalent. Nielson

The following courses are applicable in statistics:

- Accounting 556 (556). **Electronic Computer Programming.** (3:3:0)  
 Accounting 556 (557). **Advanced Computer Programming.** (2:2:0)  
 Animal Husbandry 601 (601). **Experimental Techniques and Design.** (2:2:0)  
 E.R.S. 541 (541). **Advanced Statistics.** (2:2:0)  
 Psychology 670, 671 (670, 671, 672). **Advanced Statistics I and II.** (3:3:0 ea.)  
 Sociology 524 (524). **Advanced Statistics.** (3:3:0)

## Zoology and Entomology

**Professors:** Hayward\* (chairman, 263 B), V. Tanner.

**Associate Professors:** Allen, Beck, Chapman, Frost, W. Tanner.

**Assistant Professors:** Allred, Murphy, Wood.

### Requirements for Graduate Degrees

A prospective graduate major is expected to satisfy all the general requirements for advanced degrees outlined by the Graduate School. Before or during the first semester the student is officially admitted to graduate study in the department, the departmental graduate standards committee will administer an examination designed to explore his academic background and aptitude. Recommendations to assure adequate depth and breadth of training based on an evaluation of this examination and his undergraduate record of courses will be used by the advisory committee in planning the program of graduate study. Deviations from these recommendations must be approved by the graduate standards committee. Prior to the selection and approval of the advisory committee, the graduate standards committee will direct the student's program. The responsibility for complying with all regulations of the Graduate School and of the department rests with the student.

The Department of Zoology and Entomology offers work leading toward the master's degree and the Doctor of Philosophy degree in zoology and in entomology. A student may major in either of these fields. Either one or two minors may be selected, and it is recommended that at least one of the minors be chosen from a department other than zoology and entomology.

A student may do research in specific areas in zoology or in entomology. In zoology, advanced training and research is available in ecology, embryology, genetics, herpetology, histology, ichthyology, mammalogy, invertebrate zoology, ornithology, parasitology, physiology, radiation biology, and vertebrate anatomy. In entomology, advanced training and research may be pursued in general entomology, taxonomy, morphology, ecology, and medical entomology.

### Master's Degree

Master of Science and Master of Arts degrees are offered by the Department of Zoology and Entomology. The general requirements indicated above apply to students seeking these degrees. Master's degree candidates are expected to take Zoology 696 and 697 in addition to other courses specified by their special committee.

### Doctor of Philosophy Degree

Required courses for each candidate for this degree include the following: Zoology 510, 540, 555, 578, 610, 680, 696, and 697. A comprehensive preliminary examination, oral and written, covering all areas of basic zoology or entomology with emphasis on the major and minor fields must be successfully completed before advancement to candidacy. This examination normally is taken approxi-



mately one academic year prior to granting of the degree. The candidate is expected to spend a summer term or equivalent away from Brigham Young University at an approved laboratory or field station.

### Graduate Courses

- 510 (510). **Zoological Literature.** (2:1:2) S. Wood  
An introduction to the literature of zoology designed to prepare the student for research and thesis writing.
- 524 (524). **Acarology.** (2:0:6) F. Prerequisite: Zoology 421. Offered 1962-63 and alternate years. Wood
- 531 (631). **Insect Physiology.** (2:1:2) S. Offered alternate years. Wood
- 533 (533). **Field Entomology.** (2:0:4) Su. Prerequisite: consent of instructor. Beck, Wood
- 538 (538). **Immature Insects.** (2:0:4) S. V. Tanner
- 540 (540). **Aquatic Zoology.** (2:2:3) F. Prerequisites: Zoology 451 and consent of instructor. Murphy
- 555 (655). **Principles of Zoogeography.** (2:2:0) F. W. Tanner
- 561 (561). **Advanced Vertebrate Anatomy.** (3:1:4) F. Prerequisite: Zoology 363. Chapman
- 573 (573). **Experimental Embryology.** (2:1:3) Arr. Offered alternate years. Prerequisite: Zoology 737. Allen
- 576 (576). **Advanced Genetics.** (2:2:0) F. Offered 1962-63 and alternate years. Prerequisite: Zoology or Botany 376. Allen
- 578 (578). **Radiation Biology.** (2:2:0) S. Offered alternate years. Prerequisites: Physics 202; Chemistry 112; Zoology 365. Allen
- 579 (579). **Radiation Biology Laboratory.** (1:0:3) S. Offered alternate years. Prerequisite: concurrent registration in Zoology 578. Allen
- 591 (591). **Special Problems in Zoology.** (1-2:Arr.:Arr.) F.S.Su. Staff
- 610 (610). **Systematic Zoology.** (2:1:2) F. V. Tanner
- 612 (512). **Advanced Invertebrate Zoology.** (2:0:4) F. Prerequisite: Zoology 540. Beck
- 625 (625). **Advanced Medical Entomology.** (2:0:4) S. Prerequisites: Zoology 332, 346, 347. Beck
- 628 (628). **Ecology of Parasitic Arthropods.** (2:1:3) S. Offered alternate years. Prerequisites: Zoology 433, 451. Allred
- 639 (639). **History of Entomology.** (1:1:0) F. V. Tanner
- 643 (643). **Advanced Ichthyology.** (2:1:2) F. Offered alternate years. Prerequisite: Zoology 343.
- 645 (645). **Advanced Herpetology.** (2:1:2) S. Offered alternate years. Prerequisite: Zoology 345. W. Tanner
- 646 (New). **Advanced Topics in Ornithology and Mammalogy.** (2:2:0) F. Offered alternate years. Prerequisites: Zoology 346, 347. Hayward
- 650 (New). **Animal Communities.** (2:2:0) S. Offered alternate years. Prerequisite: Zoology 451. Murphy
- 662 (662, 663). **Advanced Physiology.** (2:1:2) S. Prerequisite: Zoology 365. Chapman
- 673 (673). **Advanced Embryology.** (2:2:0) F. Offered 1962-63 and alternate years. Allen
- 680 (New). **Theoretical Zoology.** (2:2:0) S. Prerequisite: consent of instructor. W. Tanner
- 691 (690, 691, 692). **Research.** (1-6:Arr.:Arr.) F.S.Su. Staff
- 696, 697 (696, 697). **Graduate Seminar.** (1:1:0 ea.) F.S. Staff
- 699 (699). **Thesis for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Staff
- 797 (New). **Research.** (1-4:Arr.:Arr.) F.S.Su. Staff
- 799 (New). **Dissertation for Ph.D. Degree.** (1-4:Arr.:Arr.) F.S.Su. Staff





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